SKEPTICAL INQUIRER

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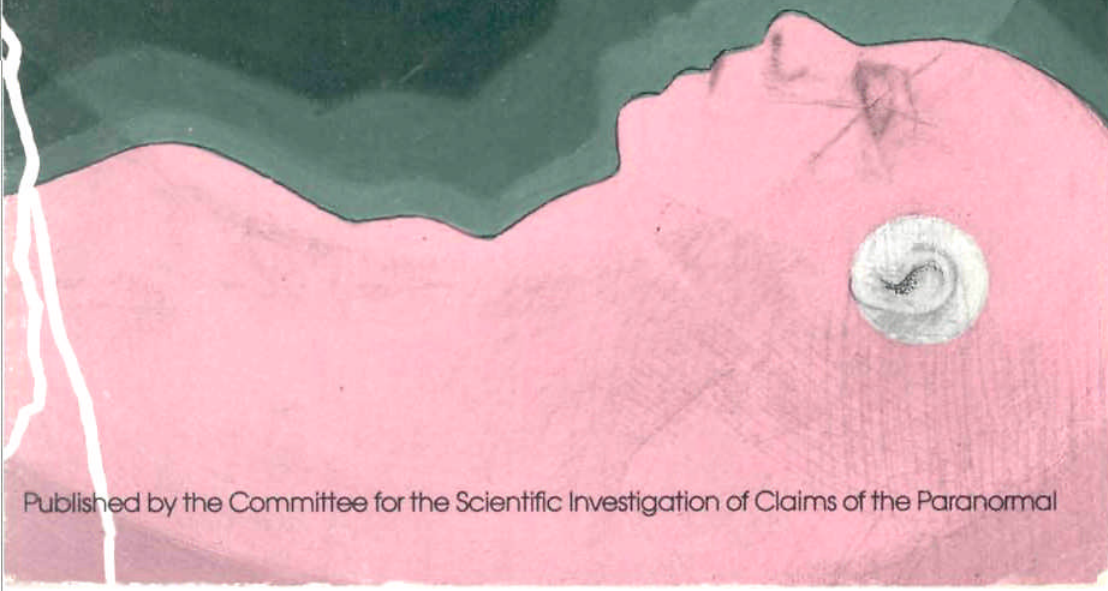
NEAR-DEATH EXPERIENCES

In or Out of the Body?

Multicultural Pseudoscience
1991 CSICOP Conference
Classical Debunkers
Science and Common Sense
Spook Hill Illusion



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Cover illustration by Bruce Adams.

1991 CSICOP CONFERENCE

Exciting Science, Hypnosis, Urban Legends, Pop Psychology . . . and a Controversy

LYS ANN SHORE

Science and society were the twin foci of the Fifteeenth Anniversary Conference of the Committee for the Scientific Investigation of Claims of the Paranormal, held May 3-5, 1991, in Berkeley/Oakland Hills, California. The setting was the Claremont Resort Hotel, a rambling structure whose grand style, spacious rooms, and wide corridors recall a bygone era. Perched on a hillside with a spectacular view of San Francisco Bay, the Claremont is a California-style health spa as well as a hotel. According to the "Guest Directory" provided in each room, the spa offers shiatsu massage, reflexology, aromatherapy massage, and an "acupressure fresh cell facial" (whatever that is). Presumably, the spa found few takers among the 600 or so attending the CSICOP conference, especially since the busy schedule left little free time to try out such exotic offerings. The scenic surroundings and mild weather encouraged outdoor walks and discussions between and after sessions, and this was a good thing since the meeting furnished ample fuel for conversation, some of it quite fiery.

Kurtz: Developing appreciation for science.

This year's conference, which was cosponsored by the Physics Department of the University of California at Berkeley and hosted by the Bay Area Skeptics, continued in the new direction set at last year's meeting, which had scientific literacy as its theme. Conference chairman Lee Nisbet and CSICOP chairman Paul Kurtz in their opening remarks dwelt on the importance of "promoting recognition of genuine science" and "developing public appreciation for the methods of science." Several of the

sessions did just that with notable success, providing the audience with insights into how science is actually done. Other sessions examined the fads and foibles of popular culture, fostering the same kind of critical examination that CSICOP has previously applied to paranormal claims. In one case, however, CSICOP may have fallen below its own standards of skepticism (see p. 4).

Plenary sessions each morning were followed by concurrent sessions in the afternoon, and it was rather difficult to choose between sessions that sounded equally interesting and important: Subliminal pseudoscience or popular psychology? Urban legends or critical thinking? It was a relief not to have to choose among the plenary sessions.

Differing Views of the Hypnotic State

The opening plenary session on Friday, "Controversies in Hypnosis," was prefaced by a summary of the history of hypnosis provided by moderator Robert A. Baker, professor emeritus of psychology at the University of Kentucky, Lexington. Two other psychology professors, Nicholas Spanos of Carleton University, Ottawa, and Ernest Hilgard, professor emeritus at Stanford University, discussed the existence and nature of the hypnotic state. The two researchers represent different sides in a scientific controversy internal to the field of hypnosis research; their participation in the same session gave the audience a window into the creative conflict out of which scientific consensus eventually emerges.

The controversy involves the precise nature of the hypnotic trance, or state—even whether such a phenomenon exists. Spanos pointed out that it's perfectly possible to elicit the phenomenon without the use of hypnotic induction techniques ("You are getting sleepy . . ."); the subject will respond just as well if simply requested to try his best. "The responsiveness of the subject matters more than whether or not you use the induction procedure," he said, pointing out that the hypnotic response occurs in a social situation in which the hypnotist is trying to elicit a response, so that the subject in order to "please" has to show the desired phenomena. "People want to be good hypnotic subjects, so they'll try to

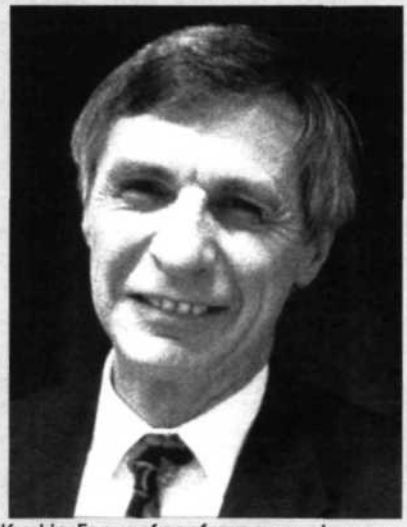
Hypnosis panelists Baker, Spanos, Hilgard, and Kreskin. Differing views on the scientific controversy within psychology over hypnosis research.

Commentary: Hit and Run

LYS ANN SHORE and STEVEN N. SHORE

In past years, CSICOP has frequently invited speakers representing alternative views of a subject. This outreach effort has resulted in the participation at past conferences of the late UFO researcher J. Allen Hynek and parapsychologist Robert Morris, among others. This year as well, CSICOP reached out—to "the Amazing Kreskin," a mentalist and well-known performer. Kreskin, a vocal critic of hypnosis, was one of the speakers in the opening session, "Controversies in Hypnosis," and his presentation created a controversy of its own. Several factors exacerbated the situation. First, session moderator Robert A. Baker, in his introduction of Kreskin, identified him as a "practical and effective psychologist who uses the stage as his laboratory" and a "scientist of behavior"—epithets that drew fire.

Second, Kreskin's own presentation contained several pro-paranormal statements. At Baker's request, he spoke off the cuff, although he had come with a prepared paper. Most dramatically, he stated: "I do claim to be a mentalist and that under certain circumstances . . . I absolutely can reveal what a person's thinking and so forth, but it may not be because of the reasons that we think of such phenomena as is called telepathic." He further remarked that "mankind is an incurably mystical race"



Kreskin: Focus of conference controversy.

and that "if you believe in paranormal phenomena, you will see them wherever you walk. But if you're completely convinced there's no such thing as paranormal phenomena, you'll never be able to discover it if it exists." He implied that the charisma of a stage hypnotist exerts a powerful and mysterious effect on hypnotic subjects, and stated that in his opinion hypnosis is not a special state and is not a proper topic for scientific research. Along the way, he questioned the motives and ethics of researchers, therapists, and experimental subjects alike.

While many of those attending the CSICOP conference certainly disagreed with such opinions, few

(continued on p. 6)

Response to the Shores

We welcome constructive criticism within CSICOP, and the Shores have raised some valid concerns, which we appreciate. What they overlooked in their complaint is that Kreskin was invited to participate in a session devoted specifically to hypnosis, and he is clearly one of the country's leading skeptics concerning the misuse and abuse of hypnosis, particularly in justifying paranormal claims.

Incidentally, the Shores quote Kreskin out of context. He begins his statement on being a mentalist by stating explicitly: *"I do not claim to be a psychic."*

I grant that Kreskin is not a 100-percent skeptic, but skeptics should avoid any appearance of hardline dogmatism. Surely our audience is intelligent enough to evaluate speakers without being hoodwinked. When I asked the hundreds of people present at the banquet on the following night if they approved of our inviting Kreskin to our conference, the reaction was overwhelmingly positive, with only seven or eight objecting.

As to my own introduction of Kreskin, I did say that he had just written a book, *The Secrets of the Amazing Kreskin*, critical of paranormal interpretations of hypnosis, but he also presented the interesting theory that some apparently paranormal phenomena may be interpreted as *"extremely* sensitive perception"—not extra- and not paranormal. Kreskin may be wrong, but it is an interesting hypothesis to explore. It is clear that Kreskin is using magic tricks throughout his act, whether his "muscle reading" routine is an illustration of his ability to "read" physical cues or a trick is an interesting topic to debate. The publication of a book by Prometheus does not in any sense imply approval of anything the author has to say.

I do not condone Kreskin's dodging of any questions. I should point out, however, that he told us before he came that he was on a tight schedule and would have to leave by 12:45 P.M. to catch a plane. We had invited him to attend a twelve-o'clock press luncheon we were hosting for members of the media at the conference. Therefore, his leaving at noon (the end of the session) was primarily due to our urging him to attend the luncheon.

Incidentally, CSICOP does not endorse any speakers at its conferences. The Executive Council has said over and over again that no one speaks for CSICOP; and since we invite speakers who present a wide range of views, this precludes an invitation being either an endorsement or a disclaimer.

Paul Kurtz
CSICOP Chairman

Kreskin has been one of the few "mentalist" magicians to emphasize that "natural laws govern the working of the mind and that those

(continued on p. 6)

(**Commentary,** *continued from p. 4)*
if any would be opposed to a speaker's expressing them. In this case, the problem arose in part from CSICOP chairman Paul Kurtz's announcement of Kreskin's new book on "extra-*sensitive* perception," soon to be published by Prometheus Books. The tone of this announcement inadvertently created the impression that CSICOP endorsed Kreskin's general position on the paranormal. It overshadowed the disclaimer made by Baker in his introduction that "despite some claims, Kreskin is not a psychic, an occultist, a fortune-teller, a mindreader, a medium, or a hypnotist. There is nothing supernatural about anything he does or has ever done. He . . . uses natural and scientific means to baffle, to entertain, and to amuse."

The third, related factor was Kreskin's refusal to answer questions at the end of the session. Admittedly, the first question posed to Kreskin was a tough one—a challenge, from a professional magician, to define "mentalist." This Kreskin refused point-blank to do. For a speaker at any conference to refuse to answer questions is almost unheard of, and in this case Kreskin's refusal was openly abetted by Lee Nisbet, the conference chairman. All speakers have faced and responded to hostile questions from audiences; the implicit understanding is that all questions deserve a response, as long as they are posed in terms that are at least superficially polite. The question addressed to Kreskin clearly met this criterion.

The Kreskin controversy lasted throughout the conference and after, though Kreskin himself left in haste, literally running from the room to a scheduled CSICOP press luncheon featuring him and several others. As a result, we are left in the dark about the precise nature of his "extra-sensitive perception," his definition of mentalism, and the meaning of his remarks on the paranormal.

Lys Ann Shore is a contributing editor, and Steven N. Shore a consulting editor, to the SKEPTICAL INQUIRER.

(**Response,** *continued from p. 5)*
who do not understand these laws call them supernatural or extra-sensory." Kreskin has long insisted there is nothing magical or mysterious about "hypnosis." Because he is correct in his view and because mentalists and stage magicians have made significant contributions to our understanding of "hypnosis," I felt this point of view should be heard and that Kreskin deserved a place on the CSICOP panel. Read carefully, Shore's quotations of me and Kreskin (pg. 4) all support our *anti-occult* stance.

Robert A. Baker
CSICOP Fellow

respond in such a way as to succeed." Spanos also questions just how amazing and puzzling the phenomena of hypnotism really are: How can we know that a subject can't hear or see, or doesn't feel pain, in response to hypnotic suggestion, when all the evidence we have is the person's verbal response? If someone says she can't hear, are we dealing with a perceptual change or a reporting bias? When experimenters attempt to measure actual physiological or perceptual changes, he said, "in most cases you get no evidence of any change." He concluded that "by and large the phenomena of hypnosis don't involve physiological and perceptual changes; rather, to seek to understand these phenomena we need to look in the area of reporting."

Hilgard, who has studied the hypnotic phenomenon ("I much prefer the adjective to the noun *hypnosis*") for the past 25 years, described the thrust of his research as "limiting the domain" of the phenomenon. He has done this in part through developing objective scales to measure such factors as suggestibility. Since to study any phenomenon one must first define it, Hilgard sees the effort to develop techniques of measurement as a necessary prelude to understanding what the hypnotic state might actually be. "Serious research goes on," he said, "and it is to be hoped that one day we'll have an accepted set of criteria to work from."

Pop Psychology and Self-Help

Friday afternoon featured two simultaneous sessions, both on topics in psychology, "Subliminal Pseudoscience" and "Popular Pyschology: An Evaluation"; I chose to attend the latter. The session also attracted quite a few psychologists, as revealed by a show of hands called by one of the speakers, which made for a lively question-and-answer period.

The opening speaker, Loren Pankratz, a professor of psychology at Oregon Health Sciences University, Portland, believes it's important to evaluate psychological therapies as critically as we do consumer products. He structured his talk around the National Council on Health Fraud's definition of quackery: "the promotion of false, unsafe, or unproven health schemes for financial gain."

As far as "promotion" is concerned, he noted that the line is fuzzy between informing the public and pitching claims. Under "schemes," he pointed out that at least 450 different psychotherapies have been identified so far, with more coming along all the time. As for "financial gain," he said that "when consulting for insurance companies, I often feel that as many dollars are wasted on the overuse of valid psychotherapies as are spent on quack therapies." Therapists sometimes combine the best of intentions with the worst of ideas, Pankratz noted, reminding his audience that intentions or beliefs are not at issue since many quacks believe in their chosen therapy. "Ethical therapists discuss up-front questions like fees, confidentiality, conflict of interest, and so forth. They view their art within the scientific enterprise," he concluded. "Those who don't are using [the equivalent of] flashlight batteries and lead weights."

In a talk called "Self-Help or Hype?" Gerald Rosen, professor of psychology and psychiatry at the University of Washington, Seattle, presented comments on "psychology's failure to

advance self-care." These days, self-help is big business, with as many as 2,000 new books published each year and hundreds of millions of tapes sold. (One estimate holds that 250 million subliminal tapes were sold in 1987 alone.) Self-help videotapes and computer programs are also widely available. At the same time, the self-help industry has expanded its horizons, for example, by introducing products that focus on problems of children. In the face of this growth, Rosen believes that psychologists have so far "failed in their support role to evaluate whether and how people can best care for themselves."

Techniques that are highly successful in a clinic may not work nearly as well when self-administered, Rosen pointed out, and unsuccessful treatments may actually make problems worse. Even if a program seems to be successful, introducing changes into it can have unforeseen results, so that different editions or versions of a program may not be equally effective. In many cases, psychologists themselves are the authors of self-help products, and Rosen criticized the practice of "rushing to market with untested programs in the face of research results that warn pyschologists to be cautious." The challenge, he said, is "not to sell psychology but to use our skills to enhance the effectiveness of self-help interventions."

The third speaker in the session, Eileen Gambrill, replaced scheduled speaker Carol Tavris, who was unable to attend. Gambrill, a professor of social welfare at the University of California, Berkeley, and author of the recent book *Critical Thinking in Clinical Practice*, took a consumer-awareness approach to self-help products. She discussed the dangers associated with such products and presented a consumer checklist for evaluating them.

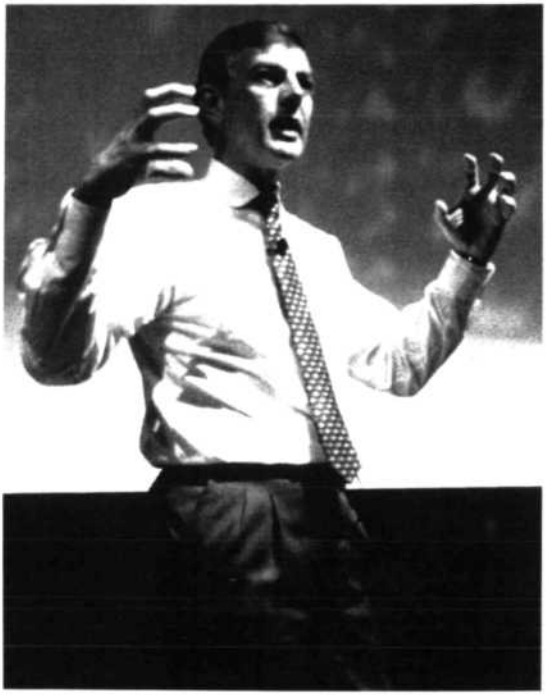
Existing self-help books have several weaknesses, Gambrill said. They typically provide few if any guidelines for self-selection of interventions suited to individual readers. Similarly, they seldom offer guidelines to encourage generalization and maintenance of the desired skill or behavior. An insidious aspect of self-help products, she noted, is the implication that the individual is solely responsible for self-change, when in reality "there are external sources of problems that are environmental, economic, social, and political."

Session moderator Barry Beyerstein presented the final talk. Beyerstein is a professor of psychology at Simon Fraser University, Vancouver, British Columbia, whose research concerns experimental neuroscience, or "how the brain mediates psychological processes." His talk concerned those proponents of pseudoscience who are "restating the old gospel of positive thinking in the garb of neurological science."

Beyerstein used the example of alpha waves, the pattern of electrical waves emitted by the brain associated with relaxation and meditation. The association has led to the promotion of alpha waves in relaxation and stress-management techniques. "Now there's an alpha-wave industry," Beyerstein said, which results from the logical flaw of mistaking correlation for causation. "The entire alpha-wave conditioning industry is built on the false premise that because people in a relaxed state produce a lot of alpha waves, therefore if you can teach them to produce more alpha, you'll enhance their relaxation, happiness, and so

forth." In fact, it's not even known, for example, whether alpha waves signify relaxation as opposed to, say, inattention to visual phenomena.

Turning to the use of biofeedback techniques to increase alpha-wave production, Beyerstein asked why there are so many satisfied customers for such techniques. In his own experiment on this question, Beyerstein found that when controls were added for expectation effect, "the results turned out to show a classic placebo effect."



Johanson: Wresting answers about origins.

The Search for Human Origins

The outstanding event of the 1991 conference was Friday evening's keynote address by Donald C. Johanson, the paleoanthropologist best known for his discovery a decade ago of the three-million-year-old human skeleton dubbed "Lucy," as well as her contemporaries, the "First Family." Johanson heads the Institute for Human Origins at Berkeley. Lucy, you may remember, is the petite female australopithecine who proved conclusively that human beings walked upright three million years before the present. Her name was also the title of Johanson's best-selling book on the discovery. "Naming the specimen thus familiarly was very important," he said, "as giving people a way to identify with a human ancestor." In his CSICOP talk, Johanson similarly gave people a way to identify with the search for human ancestors by bringing his audience into the actual process of "doing paleoanthropology."

Johanson illustrated his talk with slides of his team at work in Africa, where he has conducted field research for 20 years "trying to wrest as much as possible out of the fossils to help answer the question of where did we come from." In this tour of the excavation sites and procedures in the Great Rift Valley, at the sites of Olduvai and Hadar, he reminded the audience of a motto from the ancient author Pliny: "Ex Africa semper aliquid novi," or "There is always something new out of Africa." "We have barely scratched the surface at Hadar," Johanson said.

Johanson recognizes that the discovery of Lucy brought with it a

tremendous responsibility, which he exercises by speaking out firmly and frankly on questions of human evolution. "Evolution is a fact, just like gravity, but some people are not easily able to accept it," he said. He pointed out the importance of bipedalism as "the single thing that defines hominids. A large brain, culture—these don't go back too far. Bipedalism is all there is." Johanson places his work on human origins in a larger context; it serves "to remind us of our place in nature, for we are still part of the natural world, in spite of our supposed superiority of culture."

Catastrophism and Evolution

The session on catastrophism and evolution, which took place the morning following Johanson's address, gave a different kind of insight into the process of "doing science." The three speakers—a paleontologist, a geologist, and a physicist—are all colleagues at the University of California, Berkeley. Much of their work focuses on a key issue in catastrophism, the event that appears to have caused the mass extinctions that took place at the end of the Cretaceous and the beginning of the Tertiary era (the so-called K-T boundary) 65 million years ago. Each of the three addressed his two colleagues as much as the audience, responding to what the others had said, and engaging in a kind of banter that revealed the human side of science. Their presentations imparted a vivid sense of the excitement of the scientific enterprise.

Moderator Eugenie Scott, a physical anthropologist and executive director of the National Center for Science Education, began with a historical introduction to the concepts of catastrophism and evolution, "two very misunderstood concepts . . . which are related ideas that overlap." She defined catastrophism as the idea that "the earth's life- and land-forms have been shaped by sudden, violent forces, or catastrophes," and traced its history from the early nineteenth-century French scientist Georges Cuvier onward. "The essence of science seems to be change," she commented, noting that Cuvier's version of catastrophism has been accepted, rejected, and most recently regenerated as "neocatastrophism," a concept used to support evolution—while creationists continue to apply the notion in its original nineteenth-century form.

The first speaker was Jere Lipps, a paleontologist and professor of integrated biology, who began by displaying a slide showing a hypothetical phylogeny of fast-food restaurants—from "ancestral drive-in generalist" to hamburger specialist to chicken, roast beef, or Mexican food specialist. Lipps used the example to define the concepts of punctuated equilibrium, phyletic gradualism, and punctuated gradualism. Punctuated equilibrium posits periods of stasis followed by rapid evolutionary events that are too fast to be seen in the fossil record. This is the view put forth by such scientists as Stephen Jay Gould and Niles Eldredge. Phyletic gradualism calls for cumulative small changes in species over time. The difference between the two concepts, however, is only one of timing, since the mechanism is identical in both. Indeed, the same mechanism is at work in punctuated gradualism, which combines the other two concepts. "Evolutionists are not fighting among themselves," Lipps emphasized. "Evo-

really happens," he began. "So let's look at the dirty, real-life way in which these things actually happen."

Using his own research as an example, he pointed out that "fifteen years ago I wasn't interested in dinosaurs, I was working on reversals of the earth's magnetic field." Then he found an anomalous iridium peak in the geologic record at the K-T boundary. That was the starting point for further research—his own and others'—that has identified several kinds of evidence pointing toward some sort of catastrophic impact taking place at the boundary. "Virtually anywhere in the world where you look at a complete Cretaceous-Tertiary boundary, you find the evidence of the impact," Alvarez said. "So the question now is not whether it occurred, but what effects it had."

The catastrophism session was organized in an unusual fashion. Each speaker actually gave two short talks, rather than a single presentation. The first round, which dealt with general issues, was followed by a second, in which the speakers discussed specific research results.

Lipps addressed the problems involved in analyzing the evidence of the fossil record for extinction events. He distinguished between background, or normal, extinctions and multiple simultaneous extinctions, noting that "the fossil record must be examined with particular care as you approach any boundary, because of random effects."

While the K-T boundary exhibits varying levels of extinction of different categories of creatures, before the extinction there is high species diversity, complex morphology, provincial distribution, presence of eutrophic phytoplankton, and presence of animals with large food intake. After the extinction, there is low diversity, simple morphology, cosmopolitan distribution, lack of eutrophic phytoplankton, and lack of animals with large food intake.

Richard Muller raised the question of periodicity in mass extinctions on earth, at intervals of 26 million years. While many scientists do not yet accept the evidence for periodicity, those who do have had to develop a theory that would account for it. Muller and his colleagues have put forth the theory of a hypothetical solar companion—popularly known as Nemesis, the Death Star—with a 26-million-year period whose orbit would cause a "comet storm" every 26 million years. This comet storm could result in a series of extinction events on earth. The search for an actual Nemesis star is ongoing; 3,000 candidate stars are being investigated. "If you believe in the periodicity—and many scientists don't—then Nemesis is the only viable theory," Muller stated.

Walter Alvarez recounted the hunt for the actual K-T impact site, noting frankly that "we've gone from the embarrassment of having no impact crater candidate to having too many," since 35-kilometer-wide craters occur much more often than do mass extinctions. Currently, the best candidate is a site in Yucatán, Mexico, which bears many signs of disturbance activity, such as waves, occurring just at the K-T boundary. "It looks like a megatsunami," bigger than anything else known, Alvarez said.

Urban Legends

Saturday afternoon offered a choice between sessions on urban legends and teaching critical thinking, of

Eugenie Scott introduces Berkeley scientists Lipps, Alvarez, and Muller. Their lively interchanges on catastrophism and evolution vividly revealed the human side of science and the excitement of search and discovery.

lution is a fact; we don't fight about that. . . . Which version you accept may depend on what kinds of organisms you work on; personally, I love 'em all."

Like evolution, extinctions also have been known about for a long time, and scientists "are not fighting about that, either," Lipps said. The extinction of the dinosaurs has served to focus the problem in the public mind, to such an extent that dinosaurs have become "the paleontological spokes-animal for extinction."

Richard Muller, a professor of physics who is also the recipient of a MacArthur fellowship, is best known for his book *Nemesis, the Death Star*. He talked about "how it should have happened"—"it" being the recognition of the role of catastrophe in mass extinctions. Comets have historically been associated with impending disaster, and astronomical objects have hit and do hit the earth, just as they do the moon, leaving their mark in the form of craters, such as Arizona's Meteor Crater. The energy of an impact of an object (such as an asteroid) of 10 kilometers in diameter would equal about 100 million megatons of TNT, or about 100,000 times the world's present nuclear arsenal. Huge amounts of dust and debris would be sent into the atmosphere, notes Muller, "but would it cause the earth to become hotter or colder? The present consensus is that the earth would cool."

Such catastrophic impacts of astronomical objects "we know must have happened," Muller said. "The astronomers should have told the paleontologists, 'We know these things happen periodically, and since these things are inevitable, there ought to be some indication of them in the geological record.' There ought to have been a great collaboration between astronomers and paleontologists to uncover the catastrophes in the record."

Walter Alvarez is a geologist, or, as he puts it, "a historian of the earth, who looks at rocks, which are the textbooks of the earth." His research has focused on the development of the asteroid extinction theory. "How it should have happened isn't how it

Brunvand: Understanding urban legends.

which I chose the former, as a subject that broke new ground for CSICOP. First up was noted folklorist Jan Brunvand, whose popular books, such as *The Vanishing Hitchhiker,* have gained a wide readership. A professor of English at the University of Utah, Brunvand has made a specialty of collecting, reporting, and analyzing urban legends, those tales of bizarre experiences that "actually happened" to a friend of a friend (FOAF). An urban legend, Brunvand notes, is always told as something that really happened and generally combines a fact known to be true with an element of fantasy. Thus truth and fantasy combine to make a tale that is told and retold, with embellishments and variations. Such stories can gradually wend their way through an entire population; many Americans have heard some variant of the "Vanishing Hitchhiker" story, for example. A common theme of urban legends is the conflict between science or government, on the one hand, and religion, on the other.

Brunvand devoted his presentation to tracing the history of one of the most common such tales, the story of "The Missing Day in Time" (see the Summer 1991 issue of *SI*, p. 350). He has collected many versions of this story, which he classes as a traditional narrative. The story, which circulates among fundamentalists, tells how a NASA computer confirmed a biblical event, and how a simple, religious fellow knew more than the learned scientists. Brunvand noted that many such urban legends gain circulation not just through oral retelling but also through the popular press. "General and inaccurate references to supporting evidence are apparently sufficient to convince many people that the story has a foundation," he said.

Folklorist William Ellis of Pennsylvania State University, Hazleton,

began his talk—titled "Legends and Alien Abductions: What Can Folklorists Explain?"—by admitting, "I'm a little bit nervous approaching a roomful of skeptics with a talk on why I admire Whitley Strieber." While many skeptics would say that, in his controversial book *Communion*, Strieber was misstating the facts, or else he was mad, or else the aliens he described were real, a folklorist would tend to resist these open-and-shut alternatives and interpret the account as a legend instead (that is, if one can assume the veracity of the report). "Legends are controversial accounts of ambiguous experience," Ellis maintains. He identified what he calls the "Rumpelstiltskin Principle," which states that anomalous experiences produce stress until a way can be found to narrate the experience to others.

"The legend process cannot easily deal with materials far outside the cultural norm," Ellis noted. "Such matters may be repressed for fear of ridicule or being viewed as crazy." In Strieber's case, he said, we observe the compulsion either to deny the claims or to explain them in terms of known psychological phenomena. Ellis believes that "Strieber has essentially entered a mythological world"—as he has found himself less and less able to document the reality of the abductions, he has become more and more convinced of their reality. "Folklorists can't explain the origin and content of abduction stories," Ellis said, "but we can explain how they're constructed by legend-making processes."

A Freudian view of folklore was presented by Alan Dundes, a professor of anthropology at the University of California, Berkeley. He warned the audience, "Don't think that I'm in any way a typical folklorist," and noted that his Freudian approach is "shared by no one in the field." Dundes believes Freudian theory can help illuminate parapsychological folklore, and he gave several provocative examples. One was the image of light at the end of the tunnel, a key element of many accounts of near-death experiences. "It has been claimed that death is seen by the unconscious mind as a reversal of the birth act, a return to the womb," he said. Dundes believes that this insight can be used to illuminate both near-death experiences and out-of-body experiences. even if infants can't see, they are almost certainly light-sensitive. Thus, birth could be considered the original out-of-body experience, and death could be seen as "debirth," a return to the peaceful sanctuary of the womb.

Conclusion

Within the confines of this article, I've only been able to hit the high spots of the 1991 conference. And since as a skeptic I'm not allowed to have out-of-body experiences or use telepathic powers to hear speakers in another room, I've limited coverage to the sessions I was actually able to attend. I couldn't even use precognition to intuit which of the two concurrent sessions would be the most interesting. Would any psychics out there care to predict which will be the best sessions at the next CSICOP conference? ■

Audiotapes of all conference sessions are now available from the CSICOP office in Buffalo.

Further Notes, Observations and Comments

KENDRICK FRAZIER

The Adventure of Science. Much of the success of CSICOP's conferences is due to the work of Lee Nisbet, a professor of philosophy at Medaille College and CSICOP's longtime special projects director. Lee, in consultation with many others, has primary responsibility each year for putting together the program of sessions. He has championed the cause of broadening the conferences' scope to include such subjects as animal rights vs. scientific research at last year's conference and the several recent sessions dealing with exciting topics on the frontiers of science. One way to help distinguish pseudoscience from genuine science, he said in opening this year's Berkeley conference, "is to show what real science is." Donald Johanson's keynote address "In Search of Our Origins" and what proved to be an exciting session the next morning on catastrophism and evolution are prime examples. "We seek to explain why certain ideas are scientific," Nisbet said. One goal "is to immerse all of us in the adventure of science."

Tribute to B. F. Skinner. Opening the conference, CSICOP chairman Paul Kurtz commemorated the memory of CSICOP founding Fellow B. F. Skinner, the eminent Harvard psychologist who died this past year. Kurtz noted that through his illustrious career, Skinner "kept alive scientific and critical inquiry."

Hilgard on Fringe-Science. One of the grand old men of science participating in this CSICOP conference was Ernest R. Hilgard, the distinguished professor of psychology, emeritus, from Stanford. Hilgard, who has since observed his 87th birthday, has served on the Stanford faculty since 1933. In his talk he recalled the short piece he published in the SKEPTICAL INQUIRER ten years earlier, "Hypnosis Gives Rise to Fantasy and Is Not a Truth Serum," (vol. 5, no. 3, Spring 1981). In it he described implanting in a subject under hypnosis false memories of a bank robbery that never occurred. He also assigned two concurrent life experiences to the same person, who proceeded to recall each in detail.

But Hilgard seemed surprised he had been asked to talk at this CSICOP meeting about a rather arcane topic within psychology—the controversy over whether hypnosis is a special state—rather than give his views about fringe-science and paranormal matters. So he briefly described the latter as well.

"Those of us who have made the study of hypnosis scientifically respectable," he said, are "just as critical of psi" and of "claims of the supernormal" as are other members.

As for UFOs, he said, his attitude is a matter of public record. Hilgard, a longtime member of the National Academy of Sciences, served on the Academy committee that was asked to review the University of Colorado

CSICOP's 1991 Awards

Five distinguished scientists, scholars, and journalists were honored by the Committee for the Scientific Investigation of Claims of the Paranormal May 4, 1991, at the Awards Banquet of the CSICOP 15th Anniversary Conference in Berkeley/Oakland Hills, California.

In Praise of Reason Award: Donald C. Johanson, President, Institute of Human Origins, Berkeley, and prominent paleoanthropologist, "in recognition of his distinguished contribution to the use of critical inquiry, scientific evidence, and reason in evaluating claims to knowledge." Previous recipients of this award are Martin Gardner (1982), Sidney Hook (1985), Stephen Jay Gould (1986), Carl Sagan (1987), Douglas Hofstadter (1988), Gerard Piel (1990), and Cornelis de Jager (1990).

Public Education in Science Award: Eugenie Scott, physical anthropologist and executive director of the National Center for Science Education, Berkeley, "in recognition of her distinguished contribution to the teaching of scientific principles and to the public understanding of science." The one previous recipient of this award was astronomer Richard Berendzen in 1990.

Distinguished Skeptic Award: Susan J. Blackmore, psychologist, University of Bristol, U.K., "in recognition of her contributions to the scientific study of parapsychology." This is CSICOP's newest award; the one previous recipient, in 1990, was Henri Broch, physicist, France.

Responsibility in Journalism Award (print category): Keay Davidson, science editor, *San Francisco Examiner*, "in recognition of his outstanding contribution to fair and balanced reporting of paranormal claims." Also recognized was science writer Janet L. Hopson, coauthor with Davidson of one of the articles cited, an investigation into the claims surrounding Koko the talking ape. Previous recipients of this award have included Leon Jaroff (*Discover* and *Time*), Davyd Yost (*Columbus*, Ohio, *Citizen-Journal*), Boyce Rensberger (*Washington Post*), Lee Dembart (*Los Angeles Times*, now at the *San Francisco Examiner*), Eugene Emery (*Providence Journal*), and Stephen Doig (*Miami Herald*).

Responsibility in Journalism Award (broadcast category): Mark Curtis, reporter, WEAR-TV, Channel 3, Pensacola, Florida, who did a major investigation exposing the trick photography used for the Gulf Breeze "UFO" photos and sightings, "in recognition of his outstanding contribution to fair and balanced reporting of paranormal claims." Previous recipients are Ward Lucas (Denver), Ed Busch, Michael Willesee (Australia), and Milton Rosenberg (Chicago).

All 1991 recipients were present to receive their awards except Mark Curtis, who sent a special videotaped acceptance.—*K.F.*

study on UFOs (the Condon Report) and provide an independent assessment of its scope, methodology, and findings. The Academy panel gave the report a favorable review, supporting its critical findings about UFO claims (NAS *News Report*, February 1969), and the study was issued.

Hilgard said he still agrees with his panel's assessment and the Condon Report's conclusions. "The study was very carefully done," he said.

New NRC Report Coming. Speaking of the National Academy of Sciences, its operating agency, the National Research Council, still has in action its Committee on Techniques for the Enhancement of Human Performance. The committee's first report, *Enhancing Human Performance*, included a critical assessment of parapsychology and claims of paranormal phenomena, summarized in my article in the Fall 1988 SKEPTICAL INQUIRER. The same committee also has a subcommittee on subliminal perception, and the report it has been preparing is due to be published this fall. Two participants in the CSICOP session on subliminal pseudoscience, psychologists Eric Eich and Ray Hyman, are on that NRC subcommittee but were constrained from talking much about its conclusions. We'll watch for it with interest. (By the way, several articles based on papers from this conference session will appear in a future *SI*.)

Biology's Grand Unified Theory. Paleoanthropologist Donald C. Johanson, discoverer of the Lucy fossil, gave a wonderful keynote talk about the search for human ancestors. In his preliminary comments he noted with some satisfaction that, whereas physicists have been struggling for decades to achieve a so-called grand unified theory that would unite the fundamental forces of physics, biologists have had their grand unifying theory since 1869: Darwin's theory of evolution by means of natural selection.

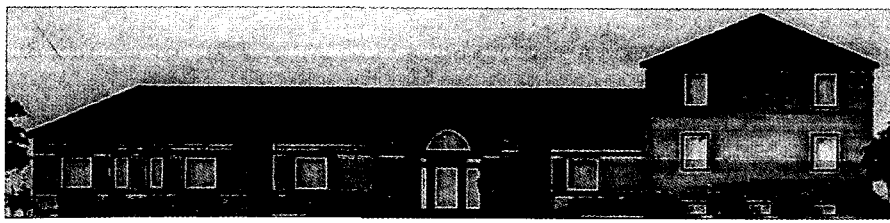
We Didn't Say It, But We're Happy to Repeat It. The East Bay Skeptics Society, quite in evidence at the CSICOP Berkeley conference, publishes a newsletter called *The Beacon.* In their January-March 1991 issue on display at the conference, the East Bay Skeptics board president and *Beacon* editor Daniel Sabsay wrote a nice piece honoring the SKEPTICAL INQUIRER on its fifteenth anniversary. It said *SI* "has brilliantly chronicled worldwide skeptical exploits and achievements throughout its fifteen-year history." He then mentioned two recent "groundbreaking" discoveries published in *SI* that merit special recognition, Phil Klass's report showing that the MJ-12 document was a counterfeit (Fall 1990) and Martin Gardner's column unveiling the earthly origin of the *Urantia Book* (Spring 1991). The piece concluded: "Fifteen years of such distinguished front-line journalism have set the standard for skeptical discourse and scholarship and made the SKEPTICAL INQUIRER welcomed and admired throughout the world. Bravo!" What can we say but to offer our deepest thanks.

Kendrick Frazier is Editor of the SKEPTICAL INQUIRER.

CSICOP Headquarters Progress Report

Phase I Building Now in Operation

Phase I of the Center for Inquiry, CSICOP's new headquarters complex, is now fully occupied and functioning at peak efficiency. Our administrative offices and our production and computer facilities are now consolidated at the new 5,700-square-foot building adjacent to the State University of New York's Amherst campus. (Kendrick Frazier continues to edit the SKEPTICAL INQUIRER from his Albuquerque, New Mexico, address.)



The Phase I building, a combined conversion-construction project fully operational.

Please note our new telephone number: 716-636-1425. Our mailing address remains the same: P.O. Box 229, Buffalo, NY 14215-0229.

CSICOP is building this headquarters complex in cooperation with the Council for Democratic and Secular Humanism (CODESH), publishers of FREE INQUIRY magazine. We are pleased that, thanks in large part to the generosity of our readers, we were able to complete Phase I without incurring bank debt.

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Occupancy of Phase I marks an important milestone. But it is only a beginning. Back-issue storage, our mail center, and our audio-visual facilities remain at our old location in the inner city. And Phase I has space for only the most recent literature in CSICOP's library collection. Finally, there is no room for our increasing numbers of meetings and seminars.

Phase II

Completing Phase II of our building program, an all-new building with almost 25,000 square feet of space, is now our top priority. It will provide a permanent home for CSICOP's research library, seminar/meeting rooms, additional office space, and other vitally needed facilities. When Phase II is completed, all of our operations will be housed in one location, with room for future expansion.

Donors of $1,000 or more will be listed in a special commemorative album. Names of donors of $5,000 or more will be inscribed on a bronze plaque. A seminar room in the Phase II building will be named after anyone giving $25,000 or more, and a wing of the building will be named for anyone giving $100,000 or more.

Please give today. Make checks payable to CSICOP and mail to the CSICOP Center for Inquiry Capital Fund Drive, Box 229, Buffalo, New York 14215-0229. Inquiries regarding substantial donations may be made in confidence to Paul Kurtz at the same address.

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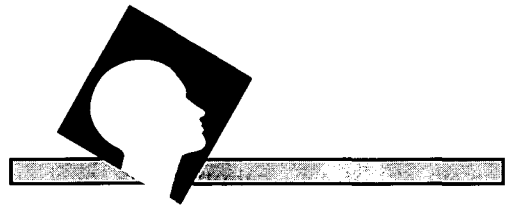


Pests Unperturbed: A Slice of Biodynamic Baloney

Trichosururs vulpecula ("possum") is a herbivorous marsupial about the size of a rabbit. It was introduced from its native Australia into New Zealand forests over 100 years ago, with the aim of establishing a fur industry. Today there is no fur industry, and possums have multiplied to the extent that they are a serious pest.

The estimated 70 million possums are destroying the unique native forests of New Zealand, which have no built-in tolerance of, or resistance to, browsing animals. Furthermore, many populations of possums have become infected with tuberculosis, and in some way not yet understood this disease can be passed from infected possums to domesticated cattle, with dire possibilities for New Zealand's economically important dairy export trade.

The most favored method for controlling possums has been the laying of food bait containing the poison fluoroacetate. This has not proved entirely successful, and among the alternatives suggested is one promoted by the Biodynamic Farming & Gardening Association. This requires the procurement and burning of a quantity of possum testicles. The ash, known as "possum pepper," is then mixed with sand, or a highly diluted extract is made according to homeopathic principles. Scattering of such preparations around the habitat of the possum is said to send the creatures fleeing in terror from the emasculating tincture.

Responding to the complaints of dairy farmers and conservationists that something should be done, and to pressure from the biodynamic lobby for the large-scale use of the homeopathic procedure, the New Zealand Animal Health Board (the government regulatory agency) commissioned a trial of this method, carried out by scientists of the New Zealand Forest Research Institute. They have recently submitted their report, so far unpublished (C. T. Eason, R. Heyward, C. Frampton, and G. J. Hickling, Forest Research Institute Contract Report: FWE 9 1/6, "An Evaluation of the Repellent Effects of Biodynamic Materials on Brushtail Possums," Forest Research Institute, P.O. Box 31-011, Christchurch, New Zealand).

The trial was carried out in a thorough, scientific manner. Six preparations, either supplied by the biodynamicists or made under their direction, were tested under double-blind, replicated, placebo-controlled conditions. Procedures used were approved by representatives of the Biodynamic Farming & Gardening Association before commencing. Possums were tested in pens and in the wild. Penned possums were offered bait smeared with, or surrounded by, test material or placebo for 16 nights and then checked for body weight,

food consumption, and foraging behavior. Possums in the wild were offered food at 58 bait stations, the surroundings of each having been sprayed either with test material or with water. Bait consumption at each station was measured.

For each of the effects under study, there was no difference between the "possum pepper" and placebo, nor did the presence of the "pepper" have any observable effect on the behavior of the possums. In contrast, as a positive control, separate tests of a known possum repellent under similar conditions had the expected repellent effect. The authors do not recommend the biodynamic materials for possum control. They say further research does not appear to be warranted; and if it is to be carried out, it should be at the expense of the biodynamicists, according to standard scientific procedure.

"Alternative" proponents are notoriously shy of organizing proper tests of their theories. Scientists, for their part, have in mind more productive uses for their time, and scientific administrators also have more profitable uses for their scarce dollars. It is thus hardly ever possible to rebut even the most unlikely claim on the basis of scientifically acceptable evidence. The researchers could find only one published report of tests on biodynamic pest control, and that was an old, poor-quality experiment, lacking untreated controls. The trials of New Zealand "possum pepper" have therefore significance beyond the immediate local problem. They have shown clearly and unequivocally that, as scientists would have expected, the biodynamic materials are useless in achieving what is claimed for them. The wider implication is that tests of similar rigor, applied to other claims of this kind, would demonstrate their vacuity also.

—Bernard H. Howard and Vicki Hyde

Bernard H. Howard is Emeritus Professor at Lincoln University, New Zealand, and secretary of the New Zealand Skeptics. Vicki Hyde is editor of the New Zealand Science Monthly.

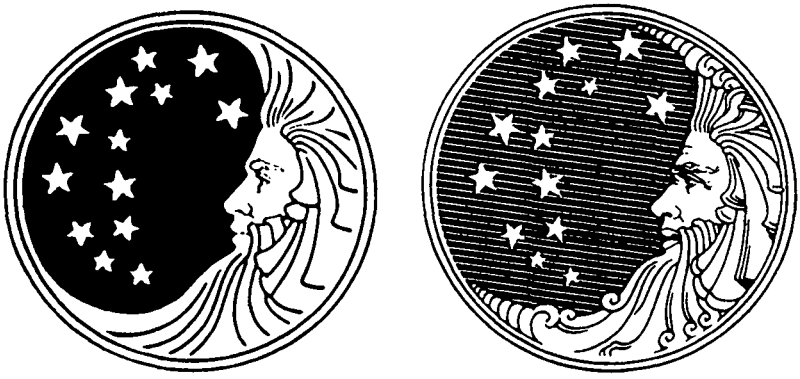
P&G Gets Satanism Rumor Settlement, Changes Logo Anyway

A federal judge in Topeka, Kansas, has approved settlement in the last of a dozen lawsuits filed by the Procter & Gamble Co. to halt rumors associating the company with Satanism. The suit accused a Kansas couple of spreading false and malicious statements. It was the first that yielded monetary damages, said P&G spokesman Terry Loftus.

Under the settlement, James H. Newton and Linda K. Newton of Parsons, Kansas, who operate Newton & Associates, an independent Amway distributorship, agreed to pay Procter & Gamble $75,000.

The court also approved an injunction permanently prohibiting the Newtons from publishing or distributing additional statements or information purporting to associate P&G with Satanism. The order also forbids the Newtons from encouraging others to boycott Procter & Gamble products.

Other suits resulted in defendants being enjoined from spreading rumors



The modernized Procter & Gamble logo, left, and the one it is replacing.

about Procter & Gamble, but no monetary judgments, Loftus said.

"These ridiculous lies have cost the company a lot of time and energy over the past ten years. We continue to pursue legal recourse against those spreading such rumors, and we will file additional lawsuits if necessary," said Robert L. Wehling, the company's vice president of public affairs.

The company said it has responded to more than 150,000 inquiries about the stories during the past decade. They were especially heavy in 1982, 1985, and 1990, it said.

Despite the favorable court judgments, on July 10, 1991, Procter & Gamble announced it is redesigning its moon-and-stars symbol.

The company said it is eliminating the curly hairs in the man-in-the-moon's beard that to some looked like 6s. The number 666 is linked to Satan in the Book of Revelations, and this helped fuel the false rumors fostered by fundamentalists. The moon and stars will remain a company trademark, but new logos featuring simply the company's name or initials will be more widely used. ■

Out-of-Body Feeling Common, Persistent In Meditators

At least some people who practice Transcendental Meditation are actually experiencing depersonalization, the well-known pyschological phenomenon that makes people feel they are observing themselves.

Richard J. Castillo, an anthropologist now at Harvard University, reported in the May 1990 *Psychiatry* that, over time, depersonalization can occur without warning. In some experienced TMers, it has "become a continuous, apparently permanent mode of functioning."

Depersonalization can account for the "higher state of consciousness" or "enlightenment" felt by some TMers. Meditators also describe the experience as the "witness" or "witnessing."

These meditators have no obvious sign of mental or physical illness, Castillo said. While experiencing depersonalization, they show no outward signs that anything is amiss, they believe they are performing

better on the job, and they feel mildly happy or content during the experience. Yet they also have an "apparent longterm loss of the ability to feel strong emotions, either negative or positive," he said.

A survey by University of Manitoba psychiatrist Colin Ross, published in the November 1990 *American Journal of Psychiatry*, found that 29 percent of 1,055 Canadians said they occasionally felt they were watching themselves in a movie and 4 percent said they had the feeling frequently.

A separate survey by David Spiegel, a psychiatrist at Stanford University medical school, found that about 10 percent of 90 people surveyed after the 1989 San Francisco earthquake reported having an out-of-body experience at the time.

Depersonalization can be sparked by fear or by repeated stimuli, such as repeating a meditator's mantra. It is also apparently linked to near-death experiences.

—*C. Eugene Emery Jr.*

Eugene Emery is a science writer for the Providence (R.I.) Journal.

(See also Susan Blackmore's article on near-death and out-of-body experiences in this issue.)

Weird Science At Steiner School

When Dan Dugan attended an open house at the San Francisco Waldorf School, he thought he'd found the most beautiful school in the world. The teachers were the most dedicated he'd met since the nuns he remembered from Catholic school. The teaching methods seemed very progressive. The children studied subjects in two-week blocks, and wrote and illustrated their own books, with art woven into every subject. A few glimpses of the strange writings of the school's founder, Rudolf Steiner, raised some questions for Dugan, but the teachers assured him that Steiner's philosophy did not appear in the curriculum. They said they used only his teaching methods. He enrolled his son in sixth grade, and everything went well for a year.

Trouble began when Dugan picked up one of Steiner's books, on sale at the school. Steiner lectured (Germany, 1922): "If the blonds and blue-eyed people died out, the human race will become increasingly dense if men do not arrive at a form of intelligence that is independent of blondness." How could apparently intelligent and sensitive people be publishing this stuff in the 1980s? They would have to be wearing the blinders of cult indoctrination.

Then his son complained, "They're teaching us baby science." A specialist science teacher had told the sixth grade that "the elements are earth, air, fire, and water." Dugan looked at several science lesson books and found more bad news. "Planetary influences" were said to affect the growth of plants. In physiology, the body was said to be made up of "the nerve-sense system, the metabolic-muscular system, and the rhythmic system." Worse than the occasional items of cult pseudoscience was what was left out. The science curriculum was based entirely on observation, and the theories that form the backbone of scientific knowledge were almost completely omitted. The children were not to be "prejudiced" by "materialistic dogma," but were to make up their own minds about how the world worked from direct observation.

Dugan proposed a parents committee to reform the science teaching. No other parents were interested. He requested a hearing with the "college of teachers," which runs the school. He was refused, and a delegation of teachers informed him that his family would be expelled unless he stopped making trouble. Beaten, they withdrew from the school.

Did all the other parents share Steiner's worldview? Belief in pseudoscience wasn't mentioned as a requirement when they were recruited. Dugan sent a survey to all 270 parents in the school, asking their positions on a selection of religious, New Age, scientific, and Steiner beliefs. Thirty-two responded. Most of these parents agreed with New Age beliefs like reincarnation that Steiner followers also hold, but almost none knew about or agreed with the pseudoscientific statements taken from Steiner literature. It appears that their children were being indoctrinated in weird science without their knowledge. ■

Chain Letter Weighs Heavily on Top Journalists

Think that hard-bitten media types are too down-to-earth to be intimidated by a chain letter? Think again.

Since as far back as January 1990, and possibly earlier, a single chain letter has been making the rounds of media moguls in the U.S.

Like most chain letters that don't ask for money or goods, this one promises good luck for perpetuating the chain, and bad luck if you don't.

But reporters, editors, and their colleagues have given this chain letter a new twist, sending cover letters and copies of cover letters from previous recipients. The results let me follow the trail of five separate chains, all with a common source and one of which had gathered 38 links in one year.

The comments show that people in a business that prides itself on the pursuit of facts and truth are easily cowed by superstition and an amorphous threat of bad luck.

The decision to copy other people's cover letters as part of the package apparently started with Judy Kurianski of cable TV's Consumer News & Business Channel. It eventually fell into the hands of George Miles of WNET in New York and then to Arthur Sulzberger, Jr., deputy publisher of the *New York Times*. "You'd think that George, as chairman of our Outward Bound School, would have more courage than to send this to me," wrote Sulzberger. "You'd think I would have more courage than to send it to you. I look to you five for true examples of courage."

No such luck. At least four links later, the letter was in the hands of *Washington Post* executive editor Benjamin C. Bradlee, who sent it to five people with a note: "A man will do anything out of fear."

Several, like Sulzberger, encouraged others not to cave in to superstition. "I'm counting on you to break this ridiculous chain," John Sterling of Houghton Mifflin wrote to five colleagues. "Save a tree, break this chain," said Random House vice-president Dona Chernoff, who didn't.

Others who passed on the letter were Jody Powell, television commentator and former presidential press spokesman, and ABC newsman Pierre Salinger, who wrote that, at 65, "I am getting too old to take a chance."

Gene Foreman of the *Philadelphia Inquirer* probably put it best: "You

understand that I am not doing this because I'm superstitious," he wrote. "I just want to avoid bad luck."

(By the way, people who feel, for whatever reason, that they can't throw a chain letter in the trash now have a place to mail their copies. After putting the name of a friend on the envelope, use this address instead of their regular address: Chain Letters Ànonymous, P.O. Box 6866, Providence, R.I., 02940. Advise the person that the letter will find a good home. You don't need to tell them that this address does to chain letters what a black hole does to passing meteors.)

—*C. Eugene Emery, Jr.*

Green Party Cofounder Icke Goes New Age

New Zealand is going to disappear. Los Angeles will split off from the American mainland. The Isle of Arran, Teesside, and the Kent cliffs will be under water by Christmas 1991. These predictions startled all of Britain in March. The man making them was David Icke (pronounced Ike), a former sports star, one of the cofounders of the Green Party (an environmentalist political party), and a well-known TV sports commentator.

Dressed in a turquoise track suit ("the color of wisdom"), Icke called a press conference to announce his apocalyptic visions. The British press were fascinated; however, they were even more impressed by Icke's new companion, a young woman he introduced as his "soul mate," who was moving into his house to live with Icke and his wife.

According to the *Daily Mail*, Icke's sporting career—he was a soccer goalkeeper—ended when he was 21 and developed rheumatoid arthritis. During the 1980s, while he was the spokesman for the Green Party, he began experimenting with fringe medicine and spiritualism as part of his search for an arthritis cure. In August 1990, following the termination of his BBC contract, Icke met a group of self-styled psychics at a Green Party exhibition. One of them, Deborah Shaw, now Mari Schawsun and, according to Icke, a "daughter of Christ," invited Icke to Calgary and took him to visit the Blackfoot Indians. From there, he seems to have delved further and further into New Age philosophies. Now Icke believes he has a mission to save the world; his wife, Linda, has been renamed Michaela (he says she is "an aspect of the Archangel Michael"); and he is, sadly to many people, the laughing stock of Britain.

—*Wendy M. Grossman*

Wendy Grossman writes out of Richmond, Surrey, U.K.

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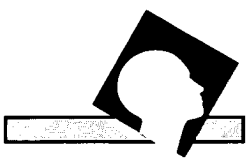

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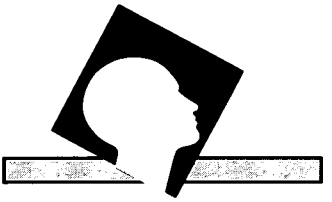


MARTIN GARDNER

Reader Feedback, from Urantia to Titanic

In my Spring 1991 column I asked readers for help on three research projects: information about Wilfred C. Kellogg, who channeled the *Urantia Book (UB);* data about the year the White Star Company decided to name its liner *Titanic;* and speculations on how Silvio, a Swiss psychic, could have paranormally linked two tiny frames, one of paper and the other of aluminum foil.

Readers were most generous in responding. Four Illinois correspondents—James Ott, of Elmhurst; Don Pearlman, Skokie; Charles Stats, Oak Park; Robert Michaelson, Evanston—and Greg Bart, of Los Angeles, sent copies of the obituaries of Wilfred Kellogg and his wife Anna from the *Chicago Tribune* and other Chicago papers. The obits were brief, giving little more than the deceased's name and address and the name of the funeral parlor that serviced both deaths. Wilfred lived at 2752 Hampden Court, half a block from the Urantia Foundation's headquarters at 533 Diversey. The building in which he and Anna lived has since been replaced by a high-rise condominium.

I erred in identifying Dr. John Harvey Kellogg, an excommunicated Seventh-Day Adventist, as the founder of the Kellogg Cornflake Company. It was founded by his brother Will Keith Kellogg. I also was mistaken in reporting that Anna and Wilfred were among the non-legally adopted children of Dr. John Harvey Kellogg. John had a half-brother, Smith Moses Kellogg, who died November 26, 1927, in Battle Creek, Michigan. Smith Kellogg's obit lists among his survivors two daughters, Lena Celestia, who married Dr. William Sadler, and Anna Bell, who married Wilfred Kellogg.

Dr. Sadler, a prominent Chicago psychiatrist, edited the revelations that purportedly came from extraterrestrials and which make up the *UB,* the massive "Bible" of the Urantia cult. Dr. Sadler also arranged for its publication. It was Mrs. Sadler who first became persuaded that the channeling of her brother-in-law Wilfred was the genuine revelation of a new religion superior to Christianity. Dr. Sadler was soon in enthusiastic agreement. He repeatedly said that the channeler's identity would never be disclosed, and the leaders of the Urantia movement have maintained strict silence on this ever since. A former Seventh-Day Adventist minister and associate of Dr. John Kellogg, Sadler stated in his popular book *Mind at Mischief* that only twice in his career

had he encountered trance channeling by persons he could not accuse of deception: one was the undisclosed *UB* channeler, the other Mrs. Ellen Gould White, the inspired prophetess of the Adventist church.

With the aid of Ken Raveill, and death certificates from the Chicago funeral parlor, the immediate ancestors of Wilfred and his wife have now surfaced. Wilfred Custer Kellogg was born in Berkshire, Vermont, the son of the Rev. Charles Leonidis Sobeski Kellogg, a Seventh-Day Adventist minister. Charles's father, Edward Kellogg, was also an an Adventist minister.

Wilfred's mother was Emma Kellogg, born in Tyrone, Michigan, February 7, 1850, the daughter of John Preston Kellogg by his second wife. John Preston Kellogg was an Adventist who begat Smith Moses Kellogg, half-brother of W. K. Kellogg and Dr. John Harvey Kellogg. All three brothers left the Adventist church later in life. Smith Moses was the father of Lena and Anna. Thus Wilfred and his wife, Anna, had the same grandfather and were first cousins.

It is believed by Raveill that when Wilfred and Anna, then living in Battle Creek, decided to marry, they were prevented by a state law against first-cousin marriages. They moved to LaGrange, Illinois, where it seems that for a time they shared a house with Dr. Sadler and Lena before all four came to Chicago.

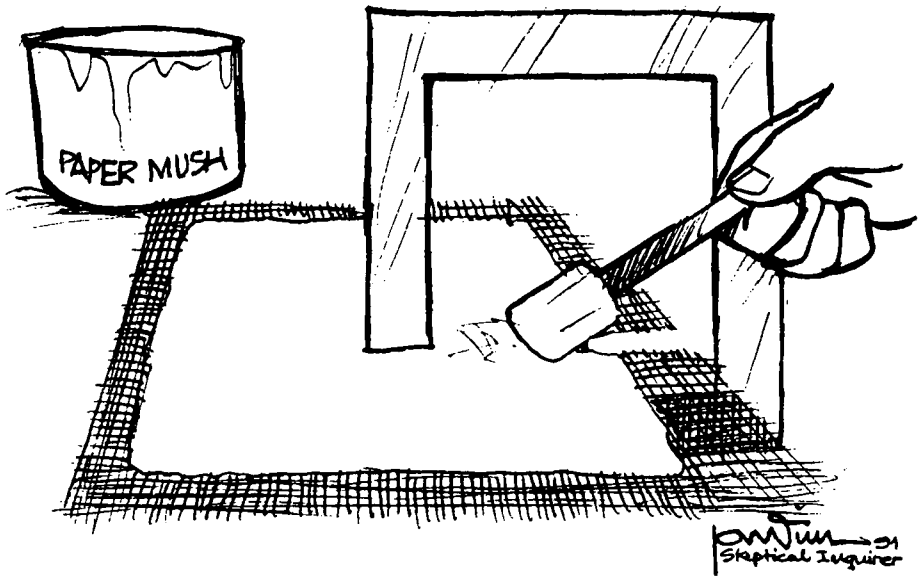
The mystery of why so much Adventist doctrine is in the *UB* is now clear. Sadler was a former Adventist minister, Wilfred was the son of an Adventist minister, and their wives were sisters who had been brought up in the church. It is not yet known whether Wilfred had any formal education beyond grade school, or whether he channeled the *UB* orally or by writing, or both. If he spoke the messages while in trance, it is likely that Dr. Sadler's adopted daughter took them down and then typed them for reading by Dr. Sadler at weekly meetings of the Urantia group. Sadler has an interesting discussion of trance states on pages 392-394 of his 896-page *Modern Psychiatry.*

Gary Vey, of Simsbury, Connecticut, wrote to point out that Urantia, the *UB*'s name for the earth, becomes Urania when you remove the T. Urania was one of the nine muses of Greek mythology, who were daughters of Zeus. She was the muse of astronomy, commonly depicted with one arm on the spherical earth, her other hand pointing to the heavens. Frequently she wears a crown of stars. Urania was also taken by the Greeks as a personification of the love that unites the earth and universe, making her name even more appropriate for the Urantia revelation.

* * *

Dr. Anthony Garrett, of the University of Glasgow, and C. D. Allen, Stoke-on-Trent, England, convinced me that the White Star Company could not have made plans for a ship to be called the *Titanic* before Morgan Robertson chose the name *Titan* for the huge liner, in his prophetic novel of 1898, that sank when it struck an iceberg in the North Atlantic.

However, some unusual new light on the story came in a letter from Brenda Bright, of Croton-on-Hudson, New York. She sent a copy of a page from a book I had not seen, *Titanic: Destination Disaster,* by John P. Eaton and Charles Haas (Norton, 1987). The authors reproduce in its entirety the following news story that appeared in the September 17, 1892, issue of the *New York Times.* This was six years before Robertson's 1898 novel was published.



tion and therefore provide positive proof of the reality of psi powers.

Beloff should have been suspicious of Meyer's linkage because the paper frame in his PPO bore no watermark or printing. It would have been just as easy for him to slice and "heal" a frame cut from a printed page or from currency. The fact that he used only blank paper should have given the game away, and it would have saved Beloff from the embarrassment of trumpeting a fake PPO in what purports to be a scientific journal. Meyer is the spoon bender of Switzerland, and Bernhard Wälti, who wrote the paper about Meyer's PPO, is a parapsychologist too gullible to comprehend that Meyer is no more than a magician. ■

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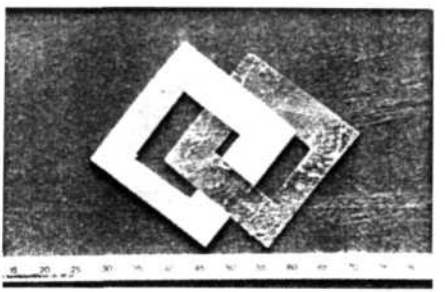
> London, Sept. 16—The White Star Company has commissioned the great Belfast shipbuilders Harland and Wolff to build an Atlantic steamer that will beat the record in size and speed.
>
> She has already been named *Gigantic*, and will be 700 feet long, 65 feet 7½ inches beam and 45,000 horsepower. It is calculated that she will steam 22 knots an hour, with a maximum speed of 27 knots. She will have three screws, two fitted like *Majestic*'s, and the third in the centre. She is to be ready for sea in March, 1894.

The figures given for the planned liner are very close to those Robertson used for his imaginary *Titan*. The *Gigantic* was to be 700 feet long, with 45,000 horsepower, a speed of 22 to 27 knots, and three propellers. The *Titan* was 800 feet long, 40,000 horsepower (changed to 75,000 in the book's second printing), a speed of 25 knots when it struck the iceberg, and with three propellers.

The *Gigantic* was never built. At the time Robertson wrote his novel the White Star had built the *Oceanic* (1871), the *Britannic* (1874), the *Teutonic* (1889), and the *Majestic* (1889). The company always added "ic" to the names of its liners. After Robertson's novel was published it would build a second *Oceanic*, a *Celtic*, *Cedric*, *Baltic*, *Adriatic*, *Olympic*, and *Titanic*.

It seems clear now what may have happened: Knowing of plans for the *Gigantic*, Robertson modeled his ship on this proposed mammoth liner. After the use of such names as *Oceanic*, *Teutonic*, *Majestic*, and *Gigantic*, what appropriate name is left for a giant liner except *Titanic*? Not wishing to identify his doomed *Titan* with the White Star line, Robertson dropped "ic" from the name. The White Star's later choice of *Titanic* for its 1910 ship was almost inevitable. The company was surely aware of Robertson's *Titan*, but perhaps did not mind adopting a similar name because it was firmly persuaded that its *Titanic* was absolutely unsinkable.

* * *



Were these two frames paranormally linked by a Swiss psychic?

Two readers, first John Geohegan, of Albuquerque, New Mexico, then P. M. deLaubenfels, Corvallis, Oregon, explained how easy it would have been for Silvio Meyer to link his two little frames. Cut a piece of paper into tiny pieces, boil them in water, then beat the mixture with a blender to make a liquid. Pour the liquid over wire mesh and press it flat. When it dries and is smoothed with the back of a spoon, it is indistinguishable from the original paper. By cutting a slot in the screen and inserting a foil frame, the puddle can be formed around one side of the foil frame. The dried paper is then cut into a frame that is linked with the foil. For more details, see my note "How to Make a PPO," in the July 1991 issue of England's *Journal of the Society for Psychical Research*, edited by the well-known parapsychologist John Beloff. "PPO" is Beloff's term for Permanent Paranormal Object. He has long hoped that such an object could be created by a psychic that would defy any normal explana-

Psychic Vibrations

The Stamp of Pseudoscience, the Army of Saucerers

ROBERT SHEAFFER

Wouldn't you jump at the chance to buy a set of stamps for $135 that, according to the fellow offering them for sale, might soon be worth $10,000? Not if you have any common sense you wouldn't, because you would realize that any investment sounding *that* good literally is too good to be true. (Besides, if the stamps were really going to become that valuable, he'd *never* sell them to you!) Why are these stamps supposedly such a gold mine? Because they depict the famous "face on Mars" that is claimed by some to have been erected by a vanished Martian civilization. *SI* previously reported on the claims of an investment firm, Alan Shawn Feinstein Associates, that the so-called "face" shown on the Viking photo may represent "the greatest discovery of the century" (Summer 1988: 340; Fall 1988: 22). Feinstein is now suggesting a way for his clients to cash in on the amazing discovery. Recently the tiny West African nation of Sierra Leone issued a "face on Mars" stamp as part of a series saluting the upcoming Observer mission to Mars. The respected *Linn's Stamp News* of December 10, 1990, reported that Feinstein is selling the set for what he calls "only" $135, even though that set is "one of a handful just blacklisted

by a Swiss-based combine of international stamp organizations" for allegedly violating the "philatelic code of ethics" of the Universal Postal Union.

Feinstein published an interview with New Age space consultant Richard Hoagland, who, when asked to justify the figure of $10,000 suggested for the stamps' value, replied, "Because that's what I believe." He added, "I know basically nothing about stamps." But Hoagland went on to explain that the face on Mars is a relic of an intelligent civilization and that when the world realizes this "it will have an unprecedented effect on people everywhere, and on the value of the Sierra Leone set." Editor Michael Laurence of *Linn's* replies: "Those who believe such breathless nonsense probably deserve financial disappointment. And that's the likely reward in store for anyone who expects speculative profit from

this overpriced and highly manipulated stamp set."

The rulers of Sierra Leone are perhaps unaware that the last national leaders who issued stamp sets promoting pseudoscience must have regretted it soon afterward. In the late 1970s the tiny Caribbean nation of Grenada issued a set of stamps depicting UFOs (this column, Summer 1979). That island's then-Prime Minister, Sir Eric M. Gairy, was a staunch believer in alien visitors. He spent much of his time in New York attempting to convince the United Nations of the threat he believed UFOs posed to the planet. He spent so much time promoting UFOs and ignoring his *real* problems that in March 1979 during one of his many absences he was deposed by a radical faction led by Maurice Bishop. Bishop was in turn deposed, then executed, by an even more radical faction in 1983, leading directly to the U.S. intervention. And all because of UFOs! Soon after Grenada issued its UFO stamps, the Republic of Equatorial Guinea issued its own stamps, bearing the likeness of the famous Adamski Chicken Brooder UFO, under the banner *Colaboracion Interplanetaria* (this column, Spring 1980). About a year later, the Nguema regime in Equatorial Guinea was toppled in a coup. Sierra Leone, beware!

* * *

Just because the Gulf War has ended without triggering Armageddon, as some had feared or hoped, it still doesn't prove that the eschaton isn't practically upon us. Indeed, one small group of ultra-Orthodox Jews expects the long-awaited Messiah to reveal himself before the Jewish New Year, which begins September 9, sending the Jewish people back to Jerusalem "on clouds of glory."

On April 15 the *San Francisco Chronicle* reported on Rabbi Menachem Schneerson of Brooklyn, the 89-year-old leader of the Lubavitcher sect of Hasidic Jews who made the prediction. Since Schneerson was said to have scored some bull's-eyes in previous predictions, his approximately 40,000 followers eagerly expected the fulfillment of this one. Schneerson is credited with predicting last fall that a war would be fought in the Gulf region, but would take few Jewish lives and would be over by the holiday of Purim, February 28. Both were exactly correct. Some are calling it "miraculous" that, although Iraqi Scud missiles damaged 10,000 Israeli apartments, only a few people were killed. As for the end of the war, President Bush ended Operation Desert Storm at midnight, February 27.

* * *

By now there is a small army of saucerers investigating the absolutely unbelievable story about a UFO crashing in Roswell, New Mexico, in 1947. They continue to make incredible discoveries, but mostly about one another. A new book on the subject by Roswell newcomers Don Schmitt and Kevin Randle has just been

published. (See the review in this issue.) In the 1970s, Randle made a circuit of UFOdom touting his discovery that the celebrated "cattle mutilations" were not performed by saucer aliens as everyone had thought, but by "Satanic cults." Reportedly, Schmitt and Randle have discovered that, when the saucer crashed near Roswell, it left behind a trench 500 feet long, which had previously escaped notice. Not surprisingly, oldtime Roswell-digger William L. Moore and his colleague Jaime Shandera don't like these new kids on the crashed-saucer block, especially since certain key witnesses, when interviewed independently, are having trouble keeping their stories straight. Also, the two teams keep stepping on each other's toes over such matters as whether certain military photos show *real* debris from the crashed flying saucer or just balloon debris that was supposedly used as "disinformation" to mislead the public. Looking at a particular photo taken in General Ramsey's office, Moore and Shandera proclaim it to be debris from an extraterrestrial craft, while Schmitt and Randle insist that the photo actually shows aluminum foil and sticks, the *real* extraterrestrial debris having been cleverly hidden away. The late Mac Brazel, who was first to find the now-famous debris in the desert, described it as "tinfoil, paper, tape, and sticks . . . [weighing] maybe five pounds." (That was, of course, what the government *made* Brazel say; it was really unearthly saucer metal, claims Bill Moore.)

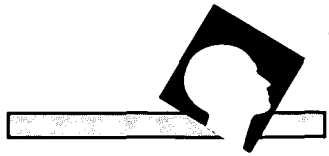
In 1990 Stanton Friedman, who calls himself "the flying saucer physicist," broke his longtime association with Moore and Shandera, ostensibly because of their criticisms of Schmitt and Randle; but the increasingly wide recognition of the MJ-12 papers—which Moore and Shandera "discovered"—as a crude hoax, must surely have influenced Friedman's decision.

Early in 1991, a new witness stepped forward with a sensational firsthand account of stumbling upon a crashed saucer near Roswell in 1947. Forty-eight-year-old Gerald Anderson recounted how, when he was five years old, he and his family spotted two live aliens and two dead ones beside a disabled spacecraft before the military arrived and rudely chased the Andersons away. Friedman was impressed with Anderson's story. However, Randle calls the account a hoax, noting that "a diary Anderson supplied is on pre-1947 paper but used post-1970 ink."

And as if the stories surrounding the Roswell Incident were not already remarkable enough, a man who calls himself Jerry Willis has been turning up at UFO conferences claiming to be the reincarnation of one of the saucer aliens who died at Roswell. ■

Near-Death Experiences: In or Out of the Body?

SUSAN BLACKMORE



The experiences people report seem very real and can be profound and transforming. Rather than deny or minimize them, we should seek to understand them, and that can best be done by theories and tests involving neurochemistry, physiology, and psychology. Some of the answers are quite interesting.

What is it like to die? Although most of us fear death to a greater or lesser extent, there are now more and more people who have "come back" from states close to death and have told stories of usually very pleasant and even joyful experiences at death's door.

For many experiencers, their adventures seem unquestionably to provide evidence for life after death, and the profound effects the experience can have on them is just added confirmation. By contrast, for many scientists these experiences are just hallucinations produced by the dying brain and of no more interest than an especially vivid dream.

So which is right? Are near-death experiences (NDEs) the prelude to our life after death or the very last experience we have before oblivion? I shall argue that neither is quite right: NDEs provide no evidence for life after death, and we can best understand them by looking at neurochemistry, physiology, and psychology; but they are much more interesting than any dream. They seem completely real and can transform people's lives. Any satisfactory theory has to understand that too—and that leads us to questions about minds, selves, and the nature of consciousness.

Deathbed Experiences

Toward the end of the last century the physical sciences and the new theory of evolution were

making great progress, but many people felt that science was forcing out the traditional ideas of the spirit and soul. Spiritualism began to flourish, and people flocked to mediums to get in contact with their dead friends and relatives "on the other side." Spiritualists claimed, and indeed still claim, to have found proof of survival.

In 1882, the Society for Psychical Research was founded, and serious research on the phenomena began; but convincing evidence for survival is still lacking over one hundred years later (Blackmore 1988). In 1926, a psychical researcher and Fellow of the Royal Society, Sir William Barrett (1926), published a little book on deathbed visions. The dying apparently saw other worlds before they died and even saw and spoke to the dead. There were cases of music heard at the time of death and reports of attendants actually seeing the spirit leave the body.

With modern medical techniques, deathbed visions like these have become far less common. In those days people died at home with little or no medication and surrounded by their family and friends. Today most people die in the hospital and all too often alone. Paradoxically it is also improved medicine that has led to an increase in quite a different kind of report—that of the near-death experience.

Close Brushes with Death

Resuscitation from ever more serious heart failure has provided accounts of extraordinary experiences (although this is not the only cause of NDEs). These remained largely ignored until about 15 years ago, when Raymond Moody (1975), an American physician, published his best-selling *Life After Life*. He had talked with many people who had "come back from death," and

he put together an account of a typical NDE. In this idealized experience a person hears himself pronounced

dead. Then comes a loud buzzing or ringing noise and a long, dark tunnel. He can see his own body from a distance and watch what is happening. Soon he meets others and a "being of light" who shows him a playback of events from his life and helps him to evaluate it. At some point he gets to a barrier and knows that he has to go back. Even though he feels joy, love, and peace there, he returns to his body and life. Later he tries to tell others; but they don't understand, and he soon gives up. Nevertheless the experience deeply affects him, especially his views about life and death.

Many scientists reacted with disbelief. They assumed Moody was at least exaggerating, but he claimed that no one had noticed the experiences before because the patients were too frightened to talk about them. The matter was soon settled by further research. One cardiologist had talked to more than 2,000 people over a period of nearly 20 years and claimed that more than half reported Moody-type experiences (Schoonmaker 1979). In 1982, a Gallup poll found that about 1 in 7 adult Americans had been close to death and about 1 in 20 had had an NDE. It appeared that Moody, at least in outline, was right. In my own research I have come across numerous reports like this one, sent to me by a woman from Cyprus:

> An emergency gastrectomy was performed. On the 4th day following that operation I went into shock and became unconscious for several hours. . . . Although thought to be unconscious, I remembered, for years afterwards, the entire, detailed conversation that passed between the surgeon and anaesthetist present. . . . I was lying above my own body, totally free of pain, and looking down at my own self with compassion for the agony I could see on the face; I was floating peacefully. Then . . . I was going elsewhere, floating towards a dark, but not frightening, curtain-like area. . . . Then I felt total peace. . . .
>
> Suddenly it all changed—I was slammed back into my body again, very much aware of the agony again.

Within a few years some of the basic questions were being answered. Kenneth Ring (1980), at the University of Connecticut, surveyed 102 people who had come close to death and found almost 50 percent had had what he called a "core experience." He broke this into five stages: peace, body separation, entering the darkness (which is like the tunnel), seeing the light, and entering the light. He found that the later stages were reached by fewer people, which seems to imply that there is an ordered set of experiences waiting to unfold.

One interesting question is whether NDEs are culture specific. What little research there is suggests that in other cultures NDEs have basically the same structure, although religious background seems to influence the way it is interpreted. A few NDEs have even been recorded in children. It is interesting to note that nowadays children are more likely to see living friends than those who have died, presumably because their playmates only rarely die of diseases like scarlet fever or smallpox (Morse et al. 1986).

Perhaps more important is whether you have to be nearly dead to have an NDE. The answer is clearly no (e.g., Morse et al. 1989). Many very similar experiences are recorded of people who have taken certain drugs, were extremely tired, or, occasionally, were just carrying on their ordinary activities.

I must emphasize that these experiences seem completely real—even

more real (whatever that may mean) than everyday life. The tunnel experience is not like just imagining going along a tunnel. The view from out of the body seems completely realistic, not like a dream, but as though you really are up there and looking down. Few people experience such profound emotions and insight again during their lifetimes. They do not say, "I've been hallucinating," "I imagined I went to heaven," or "Can I tell you about my lovely dream?" They are more likely to say, "I have been out of my body" or "I saw Grandma in heaven."

Since not everyone who comes close to death has an NDE, it is interesting to ask what sort of people are more likely to have them. Certainly you don't need to be mentally unstable. NDEers do not differ from others in terms of their psychological health or background. Moreover, the NDE does seem to produce profound and positive personality changes (Ring 1984). After this extraordinary experience people claim that they are no longer so motivated by greed and material achievement but are more concerned about other people and their needs. Any theory of the NDE needs to account for this effect.

Explanations of the NDE

Astral Projection and the Next World: Could we have another body that is the vehicle of consciousness and leaves the physical body at death to go on to another world? This, essentially, is the doctrine of astral projection. In various forms it is very popular and appears in a great deal of New Age and occult literature.

One reason may be that out-of-body experiences (OBEs) are quite common, quite apart from their role in NDEs. Surveys have shown that anywhere from 8 percent (in Iceland) to as much as 50 percent (in special groups, such as marijuana users) have had OBEs at some time during their lives. In my own survey of residents of Bristol I found 12 percent. Typically these people had been resting or lying down and suddenly felt they had left their bodies, usually for no more than a minute or two (Blackmore 1984).

"I have no objection to the theory that the experiences are hallucinations. I only object to the idea that you can explain them by saying, 'They are just hallucinations.' This explains nothing. A viable theory would answer these questions without dismissing the experiences."

A survey of more than 50 different cultures showed that almost all of them believe in a spirit or soul that could leave the body (Sheils 1978). So both the OBE and the belief in another body are common, but what does this mean? Is it just that we cannot bring ourselves to believe that we are nothing more than a mortal body and that death is the end? Or is there really another body?

You might think that such a theory has no place in science and ought to be ignored. I disagree. The only ideas that science can do nothing with are the purely metaphysical ones—ideas that have no measurable consequences and no testable predictions. But if a theory makes predictions, however bizarre, then it can be tested.

The theory of astral projection is, at least in some forms, testable. In the earliest experiments mediums claimed they were able to project their astral bodies to distant rooms and see what

was happening. They claimed not to taste bitter aloes on their real tongues, but immediately screwed up their faces in disgust when the substance was placed on their (invisible) astral tongues. Unfortunately these experiments were not properly controlled (Blackmore 1982).

In other experiments, dying people were weighed to try to detect the astral body as it left. Early this century a weight of about one ounce was claimed, but as the apparatus became more sensitive the weight dropped, implying that it was not a real effect. More recent experiments have used sophisticated detectors of ultraviolet and infrared, magnetic flux or field strength, temperature, or weight to try to capture the astral body of someone having an out-of-body experience. They have even used animals and human "detectors," but no one has yet succeeded in detecting anything reliably (Morris et al. 1978).

If something really leaves the body in OBEs, then you might expect it to be able to see at a distance, in other words to have extrasensory perception (ESP). There have been several experiments with concealed targets. One success was Tart's subject, who lay on a bed with a five-digit number on a shelf above it (Tart 1968). During the night she had an OBE and correctly reported the number, but critics argued that she could have climbed out of the bed to look. Apart from this one, the experiments tend, like so many in parapsychology, to provide equivocal results and no clear signs of any ESP.

So, this theory has been tested but seems to have failed its tests. If there really were astral bodies I would have expected us to to have found something out about them by now—other than how hard it is to track them down!

In addition there are major theoretical objections to the idea of astral bodies. If you imagine that the person has gone to another world, perhaps along some "real" tunnel, then you have to ask what relationship there is between this world and the other one. If the other world is an extension of the physical, then it ought to be observable and measurable. The astral body, astral world, and tunnel ought to be detectable in some way, and we ought to be able to say where exactly the tunnel is going. The fact that we can't, leads many people to say the astral world is "on another plane," at a "higher level of vibration," and the like. But unless you can specify just what these mean the ideas are completely empty, even though they may sound appealing. Of course we can never prove that astral bodies don't exist, but my guess is that they probably don't and that this theory is not a useful way to understand OBEs.

Birth and the NDE: Another popular theory makes dying analogous with being born: that the out-of-body experience is literally just that—reliving the moment when you emerged from your mother's body. The tunnel is the birth canal and the white light is the light of the world into which you were born. Even the being of light can be "explained" as an attendant at the birth.

This theory was proposed by Stanislav Grof and Joan Halifax (1977) and popularized by the astronomer Carl Sagan (1979), but it is pitifully inadequate to explain the NDE. For a start the newborn infant would not see anything like a tunnel as it was being born. The birth canal is stretched and compressed and the baby usually forced through it with the top of its head, not with its eyes (which are closed anyway) pointing forward. Also it does not have the mental skills to recognize the people around, and these capacities change so

much during growing up that adults cannot reconstruct what it was like to be an infant.

"Hypnotic regression to past lives" is another popular claim. In fact much research shows that people who have been hypnotically regressed give the appearance of acting like a baby or a child, but it is no more than acting. For example, they don't make drawings like a real five-year-old would do but like an adult imagines children do. Their vocabulary is too large and in general they overestimate the abilities of children at any given age. There is no evidence (even if the idea made sense) of their "really" going back in time.

Of course the most important question is whether this theory could be tested, and to some extent it can. For example, it predicts that people born by Caesarean section should not have the same tunnel experiences and OBEs. I conducted a survey of people born normally and those born by Caesarean (190 and 36 people, respectively). Almost exactly equal percentages of both groups had had tunnel experiences (36 percent) and OBEs (29 percent). I have not compared the type of birth of people coming close to death, but this would provide further evidence (Blackmore 1982b).

In response to these findings some people have argued that it is not one's own birth that is relived but the idea of birth in general. However, this just reduces the theory to complete vacuousness.

Just Hallucinations: Perhaps we should give up and conclude that all the experiences are "just imagination" or "nothing but hallucinations." However, this is the weakest theory of all. The experiences must, in some sense, be hallucinations, but this is not, on its own, any explanation. We have to ask why are they these kinds of hallucinations? Why tunnels?

Some say the tunnel is a symbolic representation of the gateway to another world. But then why always a tunnel and not, say, a gate, doorway, or even the great River Styx? Why the light at the end of the tunnel? And why always above the body, not below it? I have no objection to the theory that the experiences are hallucinations. I only object to the idea that you can explain them by saying, "They are just hallucinations." This explains nothing. A viable theory would answer these questions without dismissing the experiences. That, even if only in tentative form, is what I shall try to provide.

The Physiology of the Tunnel: Tunnels do not only occur near death. They are also experienced in epilepsy and migraine, when falling asleep, meditating, or just relaxing, with pressure on both eyeballs, and with certain drugs, such as LSD, psilocybin, and mescaline. I have experienced them many times myself. It is as though the whole world becomes a rushing, roaring tunnel and you are flying along it toward a bright light at the end. No doubt many readers have also been there, for surveys show that about a third of people have—like this terrified man of 28 who had just had the anesthetic for a circumcision.

> I seemed to be hauled at "lightning speed" in a direct line tunnel into outer space; (not a floating sensation . . .) but like a rocket at a terrific speed. I appeared to have left my body.

In the 1930s, Heinrich Kluver, at the University of Chicago, noted four form constants in hallucinations: the tunnel, the spiral, the lattice or grating, and the cobweb. Their origin probably lies in the structure of the visual cortex, the part of the brain that

processes visual information. Imagine that the outside world is mapped onto the back of the eye (on the retina), and then again in the cortex. The mathematics of this mapping (at least to a reasonable approximation) is well known.

Jack Cowan, a neurobiologist at the University of Chicago, has used this mapping to account for the tunnel (Cowan 1982). Brain activity is normally kept stable by some cells inhibiting others. Disinhibition (the reduction of this inhibitory activity) produces too much activity in the brain. This can occur near death (because of lack of oxygen) or with drugs like LSD, which interfere with inhibition. Cowan uses an analogy with fluid mechanics to argue that disinhibition will induce stripes of activity that move across the cortex. Using the mapping it can easily be shown that stripes in the cortex would appear like concentric rings or spirals in the visual world. In other words, if you have stripes in the cortex you will seem to see a tunnel-like pattern of spirals or rings.

This theory is important in showing how the structure of the brain could produce the same hallucination for everyone. However, I was dubious about the idea of these moving stripes, and also Cowan's theory doesn't readily explain the bright light at the center. So Tom Troscianko and I, at the University of Bristol, tried to develop a simpler theory (Blackmore and Troscianko 1989). The most obvious thing about the representation in the cortex is that there are lots of cells representing the center of the visual field but very few for the edges. This means that you can see small things very clearly in the center, but if they are out at the edges you cannot. We took just this simple fact as a starting point and used a computer to simulate what would happen when you have gradually increasing electrical noise in the visual cortex.

The computer program starts with thinly spread dots of light, mapped in the same way as the cortex, with more toward the middle and very few at the edges. Gradually the number of dots increases, mimicking the increasing noise. Now the center begins to look like a white blob and the outer edges gradually get more and more dots. And so it expands until eventually the whole screen is filled with light. The appearance is just like a dark speckly tunnel with a white light at the end, and the light grows bigger and bigger (or nearer and nearer) until it fills the whole screen. (See Figure 1.)

If it seems odd that such a simple picture can give the impression that you are moving, consider two points. First, it is known that random movements in the periphery of the visual field are more likely to be interpreted by the brain as outward than inward movements (Georgeson and Harris 1978). Second, the brain infers our own movement to a great extent from what we see. Therefore, presented with an apparently growing patch of flickering white light your brain will easily interpret it as yourself moving forward into a tunnel.

The theory also makes a prediction about NDEs in the blind. If they are blind because of problems in the eye but have a normal cortex, then they too should see tunnels. But if their blindness stems from a faulty or damaged cortex, they should not. These predictions have yet to be tested.

According to this kind of theory there is, of course, no real tunnel. Nevertheless there is a real physical cause of the tunnel experience. It is noise in the visual cortex. This way we can explain the origin of the tunnel without just dismissing the experiences and without needing to invent

other bodies or other worlds.

Out of the Body Experiences: Like tunnels, OBEs are not confined to near death. They too can occur when just relaxing and falling asleep, with meditation, and in epilepsy and migraine. They can also, at least by a few people, be induced at will. I have been interested in OBEs since I had a long and dramatic experience myself (Blackmore 1982a).

It is important to remember that these experiences seem quite real. People don't describe them as dreams or fantasies but as events that actually happened. This is, I presume, why they seek explanations in terms of other bodies or other worlds.

However, we have seen how poorly the astral projection and birth theories cope with OBEs. What we need is a theory that involves no unmeasurable entities or untestable other worlds but explains why the experiences happen and why they seem so real.

I would start by asking why anything seems real. You might think this is obvious—after all, the things we see out there are real aren't they? Well no, in a sense they aren't. As perceiving creatures all we know is what our senses tell us. And our senses tell us what is "out there" by constructing models of the world with ourselves in it. The whole of the world "out there" and our own bodies are really constructions of our minds. Yet we are sure, all the time, that this construction—if you like, this "model of reality"—is "real" while the other fleeting thoughts we have are unreal. We call the rest of them daydreams, imagination, fantasies, and so on. Our brains have no trouble distinguishing "reality" from "imagination." But this distinction is not given. It is one the brain has to make for itself by deciding which of its own models represents the world "out there." I suggest it does this by comparing all the models it has at any time and choosing the most stable one as "reality."

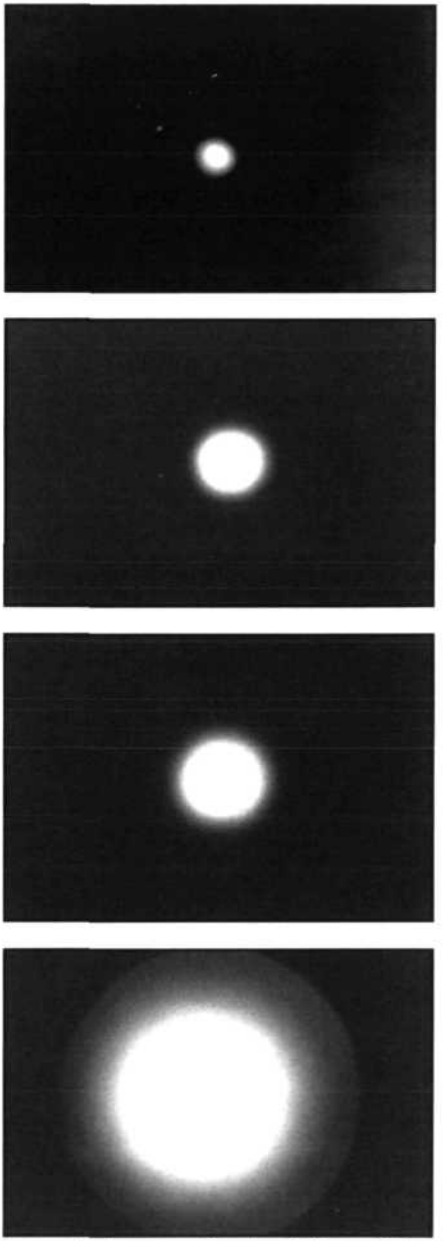


FIGURE 1: A computer simulation of the "tunnel" some see near death.

This will normally work very well. The model created by the senses is the best and most stable the system has.

"According to this theory there is, of course, no real tunnel. Nevertheless there is a real physical cause of the tunnel experience. It is noise in the visual cortex."

It is obviously "reality," while that image I have of the bar I'm going to go to later is unstable and brief. The choice is easy. By comparison, when you are almost asleep, very frightened, or nearly dying, the model from the senses will be confused and unstable. If you are under terrible stress or suffering oxygen deprivation, then the choice won't be so easy. All the models will be unstable.

So what will happen now? Possibly the tunnel being created by noise in the visual cortex will be the most stable model and so, according to my supposition, this will seem real. Fantasies and imagery might become more stable than the sensory model, and so seem real. The system will have lost input control.

What then should a sensible biological system do to get back to normal? I would suggest that it could try to ask itself—as it were—"Where am I? What is happening?" Even a person under severe stress will have some memory left. They might recall the accident, or know that they were in hospital for an operation, or remember the pain of the heart attack. So they will try to reconstruct, from what little they can remember, what is happening.

Now we know something very interesting about memory models. Often they are constructed in a bird's-eye view. That is, the events or scenes are seen as though from above. If you find this strange, try to remember the last time you went to a pub or the last time you walked along the seashore. Where are "you" looking from in this recalled scene? If you are looking from above you will see what I mean.

So my explanation of the OBE becomes clear. A memory model in bird's-eye view has taken over from the sensory model. It seems perfectly real because it is the best model the system has got at the time. Indeed, it seems real for just the same reason anything ever seems real.

This theory of the OBE leads to many testable predictions, for example, that people who habitually use bird's-eye views should be more likely to have OBEs. Both Harvey Irwin (1986), an Australian psychologist, and myself (Blackmore 1987) have found that people who dream as though they were spectators have more OBEs, although there seems to be no difference for the waking use of different viewpoints. I have also found that people who can more easily switch viewpoints in their imagination are also more likely to report OBEs.

Of course this theory says that the OBE world is only a memory model. It should only match the real world when the person has already known about something or can deduce it from available information. This presents a big challenge for research on near death. Some researchers claim that people near death can actually see things that they couldn't possibly have known about. For example, the American cardiologist Michael Sabom (1982) claims that patients reported the exact behavior of needles on monitoring apparatus when they had their eyes closed and appeared to be unconscious. Further, he compared these descriptions with those of people *imagining* they were being resuscitated and found that the real patients

gave far more accurate and detailed descriptions.

There are problems with this comparison. Most important, the people really being resuscitated could probably feel some of the manipulations being done on them and hear what was going on. Hearing is the last sense to be lost and, as you will realize if you ever listen to radio plays or news, you can imagine a very clear visual image when you can only hear something. So the dying person could build up a fairly accurate picture this way. Of course hearing doesn't allow you to see the behavior of needles, and so if Sabom is right I am wrong. We can only await further research to find out.

The Life Review: The experience of seeing excerpts from your life flash before you is not really as mysterious as it first seems. It has long been known that stimulation of cells in the temporal lobe of the brain can produce instant experiences that seem like the reliving of memories. Also, temporal-lobe epilepsy can produce similar experiences, and such seizures can involve other limbic structures in the brain, such as the amygdala and hippocampus, which are also associated with memory.

Imagine that the noise in the dying brain stimulates cells like this. The memories will be aroused and, according to my hypothesis, if they are the most stable model the system has at that time they will seem real. For the dying person they may well be more stable than the confused and noisy sensory model.

The link between temporal-lobe epilepsy and the NDE has formed the basis of a thorough neurobiological model of the NDE (Saavedra-Aguilar and Gomez-Jeria 1989). They suggest that the brain stress consequent on the near-death episode leads to the release of neuropeptides and neurotransmitters (in particular the endogenous endorphins). These then stimulate the limbic system and other connected areas. In addition, the effect of the endorphins could account for the blissful and other positive emotional states so often associated with the NDE.

"We know something very interesting about memory models. Often they are constructed in a bird's-eye view. . . . So my explanation of the OBE becomes clear. A memory model in bird's-eye view has taken over from the sensory model."

Morse provided evidence that some children deprived of oxygen and treated with opiates did not have NDE-like hallucinations, and he and his colleagues (Morse et al. 1986) have developed a theory based on the role of the neurotransmitter serotonin, rather than the endorphins. Research on the neurochemistry of the NDE is just beginning and should provide us with much more detailed understanding of the life review.

Of course there is more to the life review than just memories. The person feels as though she or he is judging these life events, being shown their significance and meaning. But this too, I suggest, is not so very strange. When the normal world of the senses is gone and memories seem real, our perspective on our life changes. We can no longer be so attached to our plans, hopes, ambitions, and fears, which fade away and become unimportant, while the past comes to life again. We can only accept

it as it is, and there is no one to judge it but ourselves. This is, I think, why so many NDEers say they faced their past life with acceptance and equanimity.

Other Worlds: Now we come to what might seem the most extraordinary parts of the NDE; the worlds beyond the tunnel and OBE. But I think you can now see that they are not so extraordinary at all. In this state the outside world is no longer real, and inner worlds are. Whatever we can imagine clearly enough will seem real. And what will we imagine when we know we are dying? I am sure for many people it is the world they expect or hope to see. Their minds may turn to people they have known who have died before them or to the world they hope to enter next. Like the other images we have been considering, these will seem perfectly real.

Finally, there are those aspects of the NDE that are ineffable—they cannot be put into words. I suspect that this is because some people take yet another step, a step into nonbeing. I shall try to explain this by asking another question. What is consciousness? If you say it is a thing, another body, a substance, you will only get into the kinds of difficulty we got into with OBEs. I prefer to say that consciousness is just what it is like being a mental model. In other words, all the mental models in any person's mind are all conscious, but only one is a model of "me." This is the one that I think of as myself and to which I relate everything else. It gives a core to my life. It allows me to think that I am a person, something that lives on all the time. It allows me to ignore the fact that "I" change from moment to moment and even disappear every night in sleep.

Now when the brain comes close to death, this model of self may simply fall apart. Now there is no self. It is a strange and dramatic experience. For there is no longer an experiencer—yet there is experience.

This state is obviously hard to describe, for the "you" who is trying to describe it cannot imagine not being. Yet this profound experience leaves its mark. The self never seems quite the same again.

The After Effects: I think we can now see why an essentially physiological event can change people's lives so profoundly. The experience has jolted their usual (and erroneous) view of the relationship between themselves and the world. We all too easily assume that we are some kind of persistent entity inhabiting a perishable body. But, as the Buddha taught we have to see through that illusion. The world is only a construction of an information-processing system, and the self is too. I believe that the NDE gives people a glimpse into the nature of their own minds that is hard to get any other way. Drugs can produce it temporarily, mystical experiences can do it for rare people, and long years of practice in meditation or mindfulness can do it. But the NDE can out of the blue strike anyone and show them what they never knew before, that their body is only that—a lump of flesh—that they are not so very important after all. And that is a very freeing and enlightening experience.

And Afterwards? If my analysis of the NDE is correct, we can extrapolate to the next stage. Lack of oxygen first produces increased activity through disinhibition, but eventually it all stops. Since it is this activity that produces the mental models that give rise to consciousness, then all this will cease. There will be no more experience, no more self, and so that, as far as my constructed self is concerned, is the end.

So, are NDEs in or out of the body?

I should say neither, for neither experiences nor selves have any location. It is finally death that dissolves the illusion that we are a solid self inside a body.

Note

In November 1990 I visited the Netherlands to give two lectures. The first, on parapsychology, was part of a series organized by the Studium Generale of the University of Utrecht and titled "Science Confronts the Paranormal." The second was at the Skepsis Conference. Skepsis refers to the very active Dutch skeptics organization called Stichting Skepsis, which means "skeptical foundation." Cornelis de Jager, professor emeritus in astronomy, is the Chair. Skepsis was established in 1987 and publishes the journal *Skepter*. Stichting Skepsis also publishes conference proceedings and monographs on subjects like reincarnation, spiritism, and homeopathy. As its purpose is to educate the public, Skepsis received a starting grant from the government but is now self-supporting, thanks to many generous donations. This is the lecture I presented at the organization's 1990 conference, on "Belief in the Paranormal."

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Multicultural Pseudoscience

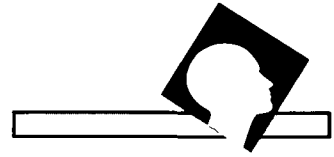
Spreading Scientific Illiteracy Among Minorities—Part I

BERNARD ORTIZ DE MONTELLANO

There is general agreement that minorities are underrepresented in science and engineering. There is also agreement that it would be useful to give young people in minority groups examples of the role minority researchers play and have played in science. Unfortunately, one widely distributed attempt to do this will increase scientific illiteracy and impede the recruitment of African-American children into scientific careers.

In 1987, the Portland, Oregon, school district published the *African-American Baseline Essays*, a set of six essays to be read by all teachers and whose contents are to be infused into the teaching of various subjects in all grades. The purpose of the essays is to provide resource materials and references for teachers so that they can use the knowledge and contributions of Africans and African-Americans in their classes. The *Science Baseline Essay*, titled "African and African-American Contributions to Science and Technology" (Adams 1990), was written by Hunter Haviland Adams, who claims to be a research scientist at Argonne National Laboratory. Actually, Adams is an industrial-hygiene technician who "does no research on any topic at Argonne," and his highest degree is a high school diploma (Baurac 1991).

The *Science Baseline Essay* follows a pattern familiar to students of pseudoscience. It is a farrago of extraordinary claims with little or no evidence; it argues for the existence of the paranormal and advocates the use of religion as a part of the scientific paradigm. No distinc-



One attempt to introduce Afrocentric science curricula will set back efforts to increase the number of minority scientists and instead will increase science illiteracy.

tion is made between information drawn from popular magazines, vanity press books, and the scientific literature, and quotations are often not attributed or are not accurate. There are a number of references to the existence and scientific validity of the paranormal in the context of its use by the ancient Egyptians. In this work, Egyptians are considered to be black and their culture is claimed as ancestral to African-Americans.

Adams mentions the use of the zodiac and of "astropsychological treatises" by Egyptians. He clearly implies that it is science. Elsewhere he has stated that astrology is based in science and that "at birth every living thing has a celestial serial number or frequency power spectrum" (Adams 1987). The *Science Baseline Essay* also states that the ancient Egyptians were "famous as masters of psi, precognition, psychokinesis, remote viewing and other undeveloped human capabilities." It argues that there is a distinction between magic, which is not scientific, and "psychoenergetics," which is, but gives no basis to distinguish one from the other. It defines psychoenergetics as the "multidisciplinary study of the interface and interaction of human consciousness with energy and matter" and states that it is a true scientific discipline. The essay says that Egyptian professional psi engineers, *hekau*, were able to use these forces efficaciously and that psi has been researched and demonstrated in controlled laboratory and field experiments today. Apparently this is why Aaron T. Curtis, who is identified as an electrical engineer and psychoenergeticist, is included in a list of African-American contributors to science at the same level as Benjamin Banneker, George Washington Carver, and Ernest E. Just.

The essay is aimed primarily at grade-school teachers, many of whom suffer from science illiteracy. Thus this essay, endorsed by a school district, prepared by someone *identified as* a research scientist at Argonne, and written using scientific-sounding jargon, is certain to influence some teachers to accept psi as a scientifically valid concept. The effect will be that many minority—and majority—children will be taught in their science classes that psi is valid, in addition to being subjected to the usual barrage of "New Age" material.

"The Science Baseline Essay is a farrago of extraordinary claims with little or no evidence; it argues for the existence of the paranormal and advocates the use of religion as a part of the scientific paradigm."

Another fundamental problem is the claim in the *Baseline Essay* that Egyptian religion was supposed to be a key organizing principle of Egyptian society. This included beliefs such as: (1) Acknowledgment of a Supreme Consciousness or Creative Force, (2) Existence via Divine Self-Organization, (3) A Living Universe, (4) Material and Transmaterial Cause and Effect, (5) Consciousness Surviving the Dissolution of the Body, and (6) Emphasis on Inner Experiences for Acquiring Knowledge. According to the *Baseline Essay, Maat* represented the first set of scientific paradigms and was the basis from which "ancient Egyptians did all types of scientific investigations." Adams admits that *Maat*'s paradigms are antithetical to those of Western science. But an unsophisticated audience will see the long list of claimed early Egyptian

discoveries and successes in science presented in the *Baseline Essay* as evidence that *Maat* is equivalent to or better than the standard scientific method. This approach, just like that of the "scientific" creationists, violates the First Amendment's clause on separation of church and state because it confuses the fundamental distinction between science, which can only use natural laws to explain observed phenomena, and religion. This distinction was crucial in the ruling of Judge Overton in *McLean vs. Arkansas* that teaching "scientific" creationism violated the First Amendment.

The key question is whether children in public schools are going to be taught that religion (under the guise of "Egyptian science") equals science. Apart from the questionable constitutionality of teaching religion (be it Christian or Egyptian) in the public schools, it will be a great disservice to minority children to teach them such a distorted view of what constitutes science. Minorities are already greatly underrepresented in science and engineering. Teaching them pseudoscience will result in making it much more difficult for these young people to pursue scientific curricula because they will face ridicule at the point they encounter a true science class.

Egyptian religion and ethics can be taught in comparative religion courses or in social studies, but that is quite a distance from teaching that Egyptian religion is essential to Egyptian "science" and that it is superior or equal to "Western" science. Teaching morality and ethics is compatible with teaching science. Ethical principles like honesty, truth, and respect for others are involved in science. Science also involves others, such as justice, equality, and avoidance of harm to others, in evaluating the consequences of research. These factors, however, do not apply when explaining and understanding scientific phenomena, when only natural laws may be used. The Second Law of Thermodynamics does not have a supernatural or an ethical component. Its application in particular cases might have consequences that raise moral and ethical questions, and these might require discussion, but this is quite different from teaching that supernatural (or transmaterial) causes are acceptable explanations in science.

A very basic question is involved in the use of the *Baseline Essay*. What is its purpose in the curriculum? Do we want to teach science as it is usually conceived or do we wish to proselytize? How is a teacher to present this section to a class? To say that Egyptian science uses the supernatural, but that Western science does not, with the implication that Egyptian science is better or equal will only perpetuate scientific illiteracy. How will students learn to distinguish science from astrology, channeling, crystal healing, telekinesis, psychic surgery, and the myriad of other New Age pseudoscientific nonsense that is floating about?

We can also apply to the *Baseline Essay* the two basic principles to remember when confronting paranormal claims (cited by Gill 1991:271): i.e., that the burden of proof is on the claimant and that extraordinary claims require extraordinary proofs. A number of outlandish claims about the accomplishments of Ancient Egypt are made with little or no evidence. For example, on the basis of a creation myth in which the word *evolved* is used, the *Baseline Essay* claims that Egyptians had a theory of species evolution "at least 2,000 years before Charles Darwin developed his theory. . . ." On the basis of a 6" × 7" tailless, bird-shaped object found in the Cairo Museum, supposedly a scale model of

a glider, Adams says that Egyptians had full-size gliders 4,000 years ago and "used their early planes for travel, expeditions, and recreation." The *Essay* credulously repeats assertions that certain dimensions of the Great Pyramid reveal and encode knowledge about the 26,000-year cycle of the equinoxes and the acceleration of gravity. He also claims that Egyptians electroplated gold and silver 4,000 years ago and had developed copper/iron batteries some 2,000 years ago.

One extended example illustrates the level of argument employed. Without citing a reference, the *Essay* states that the Egyptians had an effective pregnancy test: "A sample of a woman's urine was sprinkled on growing barley grains; if they failed to grow, the woman was considered not pregnant. Modern experiments show this method was effective in about 40 percent of tested cases. . . ." These purported "modern experiments" show that the Egyptian method is inferior to flipping a coin; the latter would have a 50-percent success rate. The *Baseline Essay* misquotes and distorts the true sense of the passage. A complete citation from the Berlin Papyrus (Manniche 1989) reads: "Barley [*Hordeum vulgare*] and emmer [*Triticum dicoccum*]. The woman must moisten it with urine every day like [she does the] dates and the sand, after it has been placed in two bags. If both grow, she will give birth. If the barley grows, it means a male child. If the emmer grows, it means a female child. If neither grows, she will not give birth." Since the word for barley in Egyptian is masculine and that for emmer is feminine, this is a classical example of magical procedure, which follows the Law of Similarities used in magical procedures everywhere.

The *Baseline Essay* is a classical example of pseudoscience, but because of the current pressure on school districts to incorporate multicultural material into the classroom and the dearth of this kind of material, it has been widely distributed. Hundreds of copies of the *Baseline Essays* have been sent to school districts across the country. Carolyn Leonard, Coordinator of Multicultural/Multiethnic Education for the Portland Public Schools, has given more than 50 presentations on the *Baseline Essays*. These have been adopted or are being seriously considered by school districts as diverse as Fort Lauderdale, Atlanta, Chicago, and Washington, D.C. The *Baseline Essay* has been used for several years in Portland, and has been adopted by the Detroit Public Schools. Hunter Adams, sponsored by D. C. Heath Publishers, was a featured speaker at a conference to stimulate and to train science teachers held by the Detroit Public Schools on April 27, 1991. A workshop on "African Contributions to Science and Technology" presented undiluted material from the *Baseline Essay*, including the use of gliders by Egyptians 4,000 years ago, without a murmur of dissent from an audience composed of grade-school science teachers.

"Minorities are already greatly underrepresented in science and engineering. Teaching them pseudoscience will result in making it much more difficult for these young people to pursue scientific curricula."

Concerned scientists need to develop reliable and scientifically valid curricular material that deals with Africa and African Americans. There

is much in Egypt that would be useful, shorn of its New Age accretions. For example, the building of the pyramids can be usefully developed into lessons about mechanics, there is interesting technology involved in irrigation, and we owe the division of the day and night into twelve hours each to the Egyptians. Scientists and concerned citizens need to question their schools to see if they have adopted or are considering the *Baseline Essay*. We should protest the inclusion of erroneous material that makes unsupported claims, introduces religion under the guise of science, and claims that the paranormal exists. The critical need to increase the supply of minority scientists requires that they be taught science at its best rather than a parody.

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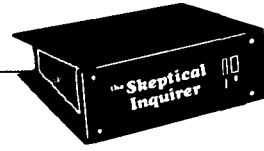

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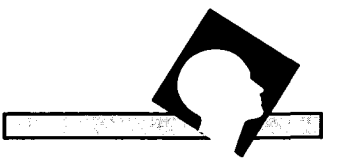
Science and Commonsense Skepticism

JOHN AACH

A measure of the task of educating people about the difference between science and pseudoscience can be seen in the results of polls occasionally published in the SKEPTICAL INQUIRER and other journals. These studies show that even college students, professors, newspaper editors, and policy makers often believe in astrology, past-life regression, and other unscientific theories. A customary response to this problem is to encourage objective, formal studies of the theories, accumulate evidence of their success or failure, and place the results before the public. The hope is that such evidence will persuade, but it does not always do so. A commonly heard argument is that the conditions imposed by critical investigations dispel the paranormal phenomena that are meant to be observed and that negative results should be dismissed. Negative evidence therefore often goes unheard.

I would like to suggest a technique for dealing with this problem, I call it the "method of commonsense skepticism." It employs informal, commonsense arguments to expose gaps in the evidence and the reasoning that are perceived as supporting unsubstantiated claims. It can also be used to demonstrate the relevance of scientific criticism of such claims to those who are inclined to dismiss it.

Commonsense skepticism is a natural complement to the more formal methods of critiquing paranormal claims encouraged by CSICOP. And, within its limitations, it also has a role to play in educating people about the nature of science.



Common sense can often encourage skepticism where science cannot. Sometimes it can also be the best way to educate people about what science is.

Commonsense Skepticism

No intelligent person can function in today's world without a healthy dose of skepticism about at least some kinds of commonplace claims, and without some propensity to evaluate the evidence for and against them. These tendencies are rudimentary forms of the kinds of reasoning and observation employed in science. Commonsense skepticism relies on the fact that most people have an elementary critical faculty to expose gaps in the kind of reasoning perceived as supporting unsubstantiated claims. Because this method is primarily a form of criticism, it is not generally suited to the rigorous evaluation of the actual truth or falsity of such claims; only more formal methods are adequate to do that. But it has one advantage over formal methods: while negative results from formal studies do not always convince a person to reconsider acceptance of a claim, a good commonsense reason for questioning it often can. The commonsense reason can even persuade a person to take formal critiques of the claim more seriously.

Since the method is informal, I can give only some brief indications of how and when it can be used. It works well in informal discussions about unsupported claims and seems especially well suited to deal with paranormal claims. It demands only a recounting of perceived evidence for the claim and a liberal use of common sense. Discussions are usually friendly, since those who believe the claim are in center stage but don't have to defend themselves against authoritative pronouncements from more rigorous, formal studies. At the same time, detailed consideration not only of the deficiencies of the perceived evidence but also of the strengths of possible alternative evidences helps keep the discussion from degenerating into mere ad hominem argument. Where references to formal studies is made, but the findings rejected, the method moves to illustrate the continuity of formal studies with accepted articles of common sense.

The following examples illustrate these points. The first two show how the method can lead people to reconsider previously accepted conclusions and the perceived evidence for them. The third shows how it can help overcome the dismissal of negative scientific evidence.

Example 1: A group of people at work were discussing a hypnotist to whom others had gone to quit smoking. One person, X (not in the group), had reportedly gone to the hypnotist with her husband and several coworkers. The hypnotist had asked them all to stand up, close their eyes, and form an image in their mind of something other than smoking. X said she heard a hissing sound and opened her eyes just enough to see him standing rigidly in front of her with his eyes closed and sucking air through his teeth—after which he moved on to the next person. For the first few days afterward, X still felt a strong urge to smoke. She called up the hypnotist, who told her she had formed an image of the wrong kind of thing (a cup of coffee) and she should return for a second treatment. Her urge to smoke did decrease after this second visit for a similar treatment, nearly a week after the first. She gave the hypnotist considerable credit for breaking her smoking habit, as did most of the people in the group discussing the incident.

A lively debate arose and several alternative explanations of the incident were laid out. It was not clear that the hypnotist did anything at all, since X reported no reduction in the urge to smoke until a week later—

when the worst withdrawal symptoms might have passed on their own. Peer pressure could also have been a factor. She had gone to the hypnotist with her husband and several coworkers and none of them would want to be the first to break rank. Still, the consensus was that "it worked," since so many people had succeeded in quitting, and that the hypnotist should get some credit for this.

I opposed this opinion on the following grounds: Even if we assumed that something about the procedure helped X and the others stop smoking, the group was claiming more than that by saying "it worked." What was the *it*? The hypnotist's standing in front of the group and sucking air through his teeth? When we discussed this, nobody could quite believe that this act could help break a smoking habit, and there were no further claims to the effect that the hypnotist should get credit.

Example 2: Y's father was well known as a dowser. When we visited her parents' house, Y's father tried to show me how to dowse, saying anyone could do it. Part of his procedure involved my holding one fork of a dowsing rod while he held the other. I noticed that, when he relaxed his grip on his fork and the stick dropped by its own weight, it felt on my side very much as if it was being pulled down. I speculated that unconscious relaxation of one's grip when holding both forks might make one think the stick was being pulled down by some external agency.

Y strongly denied that this was so, saying she had felt the stick being pulled down and had not relaxed her grip. She took this as evidence for dowsing. I asked her if, in fact, there was water under the spot where the stick dropped, and she said that she had never checked. "Then regardless of what happened with the stick," I replied, "how did you know you were dowsing?" She had to admit that this incident was not, in fact, evidence for dowsing.

Example 3: At a family dinner, Z described her belief in telepathy. I replied that I was skeptical of telepathy as I understood that science had apparently found no sound support for it. She said that science could not be expected to detect telepathy since unsympathetic skepticism inhibits it. I replied that I thought of science mainly as a method of assuring that conclusions were based on sound evidence and that I could see no reason telepathy would not show up in scientific studies if it existed. What, I asked her, was her evidence for telepathy?

Z replied that she and her sister used to have a special rapport. When her sister was in one part of the house and thought something, Z would know what she was thinking, and vice versa. I asked if she thought it would have made a difference if someone else were in the house with her and her sister and took note of exactly what conditions were in effect as it happened. She said it would not. I replied that this would be little different from what a scientific investigation of this rapport would be like, except that the scientist might ask to set the conditions to see what effects they might have. She now agreed that a scientific study of telepathy could be of value.

Limitations of the Method

The third example is a good instance of what may be the main limitation of the method of commonsense skepticism. Whereas in the first two examples people actually revised their opinions about paranormal claims and the perceived evidence for them, it is doubtful that Z changed her mind about the existence of telepathic

communication with her sister or what she perceived as evidence for it. Z conceded only that science could have something to say about whether telepathy exists, but did not think the negative evidence science had accumulated was in any way relevant to her. Doubtless, she felt quite the opposite—that a scientific study of her rapport with her sister would have substantiated the existence of telepathy.

The source of this limitation is not hard to find: While the key points raised in the first two examples turn on issues easily adjudicated by common sense, the question of telepathy in the last one cannot be. *Everyone* knows the limits of the effects in the everyday world of thoughts of cups of coffee and sucking air through one's teeth, and *everyone* knows that dowsing means more than feeling a stick drop. As a result, when those discussing the first two paranormal claims realized that the reasoning advanced in their favor conflicted with this common knowledge, they immediately acknowledged it as a challenge to their beliefs and revised them accordingly. But the psychology of Z and her sister is not common knowledge, so commonsense doubts about this particular rapport between them cannot be raised.

The effects of this limitation can be quite conspicuous. Purported medical treatments provide good examples for comparison. A treatment that supposedly removed allergens from foods by shining a light on them when placed over a magnet was an easy target for commonsense doubts, since most people are well acquainted with magnets, lights, and allergies. (Of course, such doubts may yet be resisted by those committed to the idea of such treatments, and they do not constitute actual proof that the treatments are ineffective; again only formal studies can determine the truth of such claims.) But purported diagnoses and treatments that do not involve commonplace things, e.g., iridology and reflexology, are harder targets for precisely that reason—since anatomy, physiology, the etiology of disease, and the feelings of well-being of the practioners' subjects are all generally beyond common knowledge.

While commonsense skepticism may not be able to directly induce reconsideration of a claim in such cases, it may yet have an indirect effect if it succeeds in demonstrating the relevance of science, as it did in Z's case. For this imposes an obligation to deal with scientific evidence against the claim. A person in Z's situation might well feel compelled to put her own claim of paranormal powers to a scientific test, or to show why the negative scientific evidence does not apply to her case. Both of these are advances from an initial position that entirely rejects science.

Commonsense Skepticism and Science Education

To learn a science is, among other things, to learn a discipline for formulating well-defined claims about the world and comparing them in a controlled way with experience. There is more to science than just this, of course. Science also aims to build up organized bodies of such claims and, where possible, to construct comprehensive theories that explain them. But organization and theory-building are not unique to science (consider, e.g., law or philosophy), while formulation and confirmation of well-defined claims about the world is. If this discipline is lacking, even one thoroughly versed in scientific theories may be said not to know science.[1] To acquire this discipline can involve

mastering specialized languages for stating claims (e.g., mathematics) and highly technical methods of acquiring and evaluating experience (e.g., special instruments of observation and theories of observational error).

Despite this, scientists and philosophers have long insisted that science has its roots in common sense. If so, the method of commonsense skepticism may have some role to play in teaching people what science is and how it differs from pseudoscience. That this seems true may be seen by reflecting once more on the examples above. These suggest that commonsense skepticism addresses a deficit that must be dealt with before disciplined confirmation of claims about the world can take place.

Part of what goes into calling scientific claims "well defined" is that they must be articulated in terms whose meanings are not allowed to change over the course of their scientific employment. The key development in Example 1, however, was to expose a term that had no clear reference—the *it* in the claim "it worked"—and to show that the claim was unacceptable as soon as its reference was made specific. In Example 2, as well, the main issue revolved about a case of shifting meaning—here, for the term *dowsing*. Only by forgetting that "dowsing" means feeling a stick drop *in response to the presence of water* could Y jump to the conclusion that she was actually dowsing on the occasion mentioned. When the error was pointed out to her, she immediately modified her claim.

In this way, commonsense skepticism helps lay some important groundwork for learning about science and so can contribute to science education. But by dealing with the question of possible alternative evidences for unsupported claims, the method can go considerably further, as seen in a continuation of Example 2.

Example 2 (continued): Y still insisted that there was something to dowsing, saying that it should not be dismissed simply because there was no explanation for it. I replied that I would not need an explanation for dowsing to accept its existence, but only good evidence for it. W then asked if I meant I wanted something like a *cause;* I said no, more like a "track record." I explained myself by reference to the recent discovery of the HIV virus, pointing out that until then nothing like a cause or explanation of AIDS had been known, but that scientists had developed a profile of the disease from epidemiological data that identified its principal manifestations, modes of transmission, and so on. If a confirmed record were available of how and when dowsing succeeded, I would be convinced of its existence. Y and I went on to discuss what might be needed to provide a track record for dowsing and why the kinds of accounts of dowsing she and her father provided were inadequate for this (e.g., they lacked controls and took no account of the high probability that water can be found at random because it is so common).

The Task of Science Education

To see why the task of educating the public about science may require some form of commonsense skepticism first demands that we recognize the peculiar nature of this task: While the enterprise of science demands that scientists be educated about science, science as a form of inquiry does not demand that it be understood by most people. The fact that polls show that most people misunderstand or reject science is not a problem for science

per se, but for societies that depend on science.

Polls are data. They describe the opinions or levels of knowledge possessed by certain groups of people, but not what opinions or knowledge they *should* possess. That large numbers of educated people do not accept science is simply a fact, not a problem, until a value judgment is made that widespread scientific knowledge is important. Obviously, anyone who denies the value of science can take comfort only in data showing that a scientific world-view is unpopular. But until recent times even scientists and philosophers often simply took it for granted that to behold deep truths was the privilege of a select few.

In 1748, La Mettrie wrote:

> It is not enough for a wise man to study nature and truth; he should dare state truth for the benefit of the few who are willing and able to think. As for the rest, voluntary slaves to prejudice, they can no more attain truth, than frogs can fly.[2]

La Mettrie's example, by no means unique, shows that the judgment that widespread scientific knowledge is valuable is not intrinsic to science itself. Such a value must have come, in part, from outside science, and some of its modern sources are not hard to find. Today, more than ever before (and probably since the Industrial Revolution), science confers power, and its cultivation and control is recognized as a social and political necessity. But this requires that scientific knowledge be widespread. As Jon Miller of Northern Illinois University recently noted in connection with a poll he and John Durant of Oxford University conducted on scientific literacy in the United States and Great Britain:

> The important point is that in two of the world's oldest and most prominent democracies at least nine out of ten citizens lack the scientific literacy to understand and participate in the formulation of public policy on a very important segment of their national political agendas.[3]

The key point here is that the forces demanding that the public understand science are largely independent of the burden of the task itself.[4] But this burden is not small. If the differences between science and pseudoscience were easily grasped, the problem of widespread misunderstanding of science would never have arisen. One need not be elitist, nor assume with La Mettrie that ignorance is voluntary, to suppose that it is likely that there will always be large numbers of people who will only grasp it with difficulty.[5]

As researchers explore the depths and causes of public misunderstanding of science, remedies are already being sought in improvements to science curricula and methods of teaching science. Significant progress is no doubt possible. But given the difficulty of the lesson to be taught (not to mention the fact that such improvements will not affect the multitudes whose schooling is already over), it is not too much to suggest that there will be a persistent need to teach and reinforce it with the aid of more familiar things. Thus, since commonsense skepticism can help convey some of the main features of science by means of things everyone can be expected to know, it may always have a place in educating the public about science.

Notes

1. Richard Feynmann once described a university in Brazil where physics students could solve problems and manipulate phys-

ical concepts in the abstract but could not relate them to the world. Thus, students could answer questions in the abstract about how light reflected from a surface would be polarized, but did not know that the light reflected from the bay outside was polarized. Feynmann challenged the university with the claim that "*no* science is being taught in Brazil" (Richard P. Feynmann, *Surely You're Joking, Mr. Feynmann*, Bantam Books, 1985, pp. 191-198). There is some danger that excessive concern with polls that test public knowledge of scientific facts may obscure this point.

2. Julien Offroy de La Mettrie, *Man the Machine*, annotated by Gertrude Carman Bussey (Open Court: La Salle, 1912), p. 85.

3. Barbara J. Culliton, "The Dismal State of Scientific Literacy," *Science*, 243:600. Also reported in David Swinbanks, "Science Literacy Found Wanting in the United States and Britain," *Nature*, 337, no. 6206, p. 400. The quotation (from Miller) and statistics in note 4 below are from the *Science* article.

4. The point is also important because it shows that there is a need to justify the claim that science education should communicate not only the results of science but also an accurate picture of what science is. Lacking this, it may well be judged socially more important to communicate the former at the expense of the latter. Miller and Durant disclosed that 35 percent of those surveyed in both countries thought radioactive milk could be made safe by boiling, and that 88 percent of Americans thought astrology was scientific. In an age marked by the Chernobyl nuclear accident, the first finding surely represents a more pressing educational problem than the second, even though the second reveals a serious misunderstanding of what science is about. One obvious way to argue that science education should teach the nature as well as the results of science is to claim, presumably with Miller, that policy issues involving science cannot rationally be decided unless the public knows both.

5. Regular literacy, as opposed to scientific literacy, yields a useful parallel here. George Miller has recently noted that economic and technological developments in society now demand that more people meet higher standards of literacy than have been required in the past, and argues that it may no longer be reasonable to assume that all people can and should be made to meet the same high standard (George A. Miller, "The Challenge of Universal Literacy," *Science*, 241:1293-1299).

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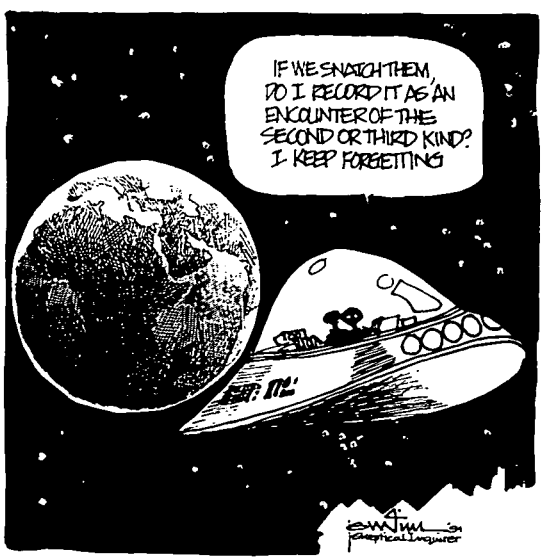
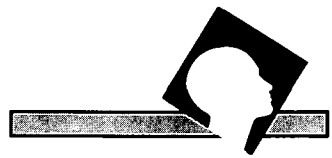
OUT THERE Rob Pudim



Spook Hill: Angular Illusion

GUSS WILDER

Cars and oranges roll uphill, baffling scientists? This is the sort of stuff you expect to see in the *National Enquirer.* But if you picked up the October 25, 1990, *Wall Street Journal,* you saw a headline in the middle of the front page proclaiming: "Spook Hill Baffles Scientists, Defies Laws of Gravity." While this spot in their paper is traditionally devoted to human-interest and local-color stories with only a tenuous link to financial matters, this particular article on Spook Hill was unusually lacking in factual substance.



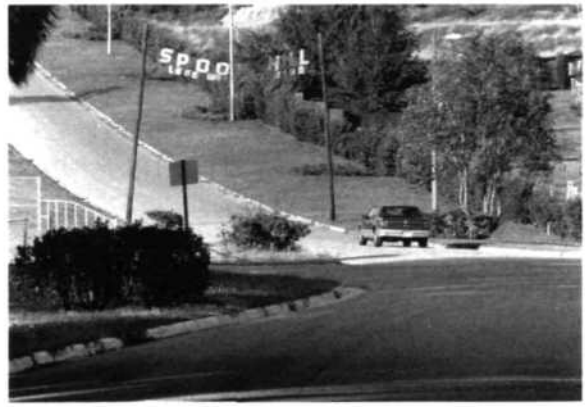
Do cars really roll up Spook Hill? The Wall Street Journal *seemed to think so.*

Spook Hill is located in the city of Lake Wales in central Florida. It involves a public street that, when viewed from one approach, has the appearance of sloping somewhat downward before rising up a steeper slope. Signs at the location direct cars to drive forward and stop at the apparent low point. At that point, when the car is put into neutral, it rolls backwards—apparently uphill. The illusion is quite striking, and the location has been a minor attraction for decades.

It is, however, just an illusion, nothing more. The contours of the surrounding terrain combined with the twists in the approach road lead the viewer's senses astray. When viewed from any angle other than from the designated approach road, the alleged "low point" is obviously higher than the road behind it. A substantial portion of the visitors never get out of their cars to size up the situation properly and drive away with bewildered looks on their faces. The street has been made one-way, so drivers cannot turn around and get the very different perspective driving back down the steep hill. It is an interesting study of human nature just to watch the befuddled people who stop their cars, look around a while, and finally

get that "Now I see it!" look on their faces.

One wonders how it was that Robert Johnson, the *Wall Street Journal* reporter, happened to miss what was there for anyone to see. Most reported strange phenomena are not usually available for firsthand investigation—a fleeting Loch Ness monster, for instance. But since this one is quite accessible, negligence in reporting is inexcusable. Does the *Wall Street Journal* expect its reporters to know "up" from "down"? According to Johnson, a reporter (unnamed) placed a carpenter's level on the slope and verified that the hill sloped upward in the direction the cars rolled. It only takes a moment's thought about how a level works to question this observation. Why is it that the water in a level would be drawn in one direction while cars and oranges are drawn in the opposite direction? Bringing my own level to the site, and checking three different points on the slope, I found that the downward direction, according to the level, was the direction that the cars rolled. Further, any dutifully observant reporter would have noticed the storm drain positioned at the true low point of the road to which the cars roll "up." At least the city engineers knew the low point when they built the street.



View from approach leads the eye to believe the road goes slightly downhill. (Photo by Guss Wilder)

Side view of same section of street shows its uphill inclination. (Photo by Guss Wilder)

Under a "Scientists Baffled" subheading, the article quotes from four people—three geologists and a psychologist—whose titles and backgrounds would seem to give them prima facie respectability among scientific thinkers. The quotations, however, did not seem to deal with actual observations of the site. Curious as to whether they were truly representative of the observations and conclusions of those quoted, Gary Posner, founder of the Tampa Bay Skeptics, was able to contact two of the quoted scientists. Jack A. Kapchan, a University of Miami psychologist, stated, "Without any data, I am unable to advance any hypothesis explaining the phenomenon. Therefore I am

Time Hypes Hill Too

The *Wall Street Journal* isn't the only national news publication recently to hype Spook Hill. In *Time* magazine's May 27, 1991, cover story on Orlando, Florida ("Fantasy's Reality"), the weekly newsmagazine, in a sidebar entitled "Strange But True," said: "The oddest natural curiosity in the area is Spook Hill, 50 miles south of Disney World, where drivers can shift their cars into neutral and mysteriously roll backward 'up' toward the top."

inclined to go with the optical-illusion explanation. However, I hope to visit the site in the very near future." Another *WSJ* interviewee, Anthony Randazzo, of the University of Florida Geology Department, stated bluntly that he had never visited the site, that he was quoted out of context (in a way that implied a true gravitational anomaly may exist there), and that he did not wish to continue to be involved in such "foolishness." So where are the "Baffled Scientists" alluded to—perhaps they are vacationing in the Bermuda Triangle (also referred to in the article).

It could be that Johnson's report was mistreated in the editing department. According to Eric Pera, a reporter for the *Lakeland Ledger*, Johnson grew up in that area of Florida, and he quotes Johnson as saying of his visit, "I went as a skeptic, and I returned a skeptic." If Johnson really was a skeptic, it did not show up in his article. While this was certainly not a "hard" news article, there are many people in the world who will assume that if a *Wall Street Journal* reporter was confounded, there must be a "real" phenomenon there. To have preserved its integrity as a solid source of information, and to have made a worthwhile contribution to the education of the public, the *Journal* should have stated unequivocally that Spook Hill was an amusing illusion, well worth the current price of admission (free).

Contrary to suggestions in the article, it appears that there is no serious intent to charge a fee for this attraction. So, after you have blown the family vacation fund at Disney World, drive over to Lake Wales for this. Even after you figure it out, it's still fun to watch the string of tourists mulling it over. And if you are looking for a reliable news source for your investment considerations, well . . .

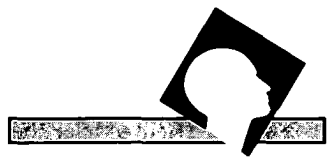
Guss Wilder is a computer programmer who resides in central Florida and is a member of the Tampa Bay Skeptics.

Lucian and Alexander

Debunking in Classical Style

WALTER F. ROWE

In the year A.D. 164 a middle-aged gentleman paid a visit to the town of Abonuteichos on the southern coast of the Black Sea. That he was an important personage was shown by his escort of two Roman soldiers. He had come to meet the most prominent citizen of Abonuteichos: the prophet Alexander, founder and leader of the cult of Glykon, the human-headed snake god. He found Alexander surrounded by a mob of worshipful locals. As Alexander extended his hand in greeting, the visitor bowed as if to kiss the proffered hand and then sank his teeth into it in a savage bite.



Lucian's exposure of Alexander the quack prophet began a long line of writings exposing fraudulent cults, tricksters, and charlatans that continues to this day.

Thus did Alexander the quack prophet meet his future biographer, Lucian of Samosata. Like the cynic philosopher Diogenes (who used a lantern in daylight to search for an honest man), Lucian continued to clamp his teeth into rogues, albeit in a figurative rather than a literal sense. Lucian's satire on the life of Alexander of Abonuteichos, *Alexander; or The False Prophet,* immortalized Alexander as the archetype of the cosmic scoundrel and charlatan. It proved to be the beginning of a long line of writings exposing fraudulent religious cults and assailing rogues and charlatans generally. James Randi's exposures of tricksters and swindlers in *Flim-Flam!* and *The Faith-Healers* are just the most recent skirmishes in a battle whose first shots were fired by Lucian.

As Lucian tells the story, Alexander was born in Abonuteichos of undistinguished parents. One of his lovers, a disciple of Apollonius of Tyana (founder of another well-known cult) became his mentor and taught him all the tricks

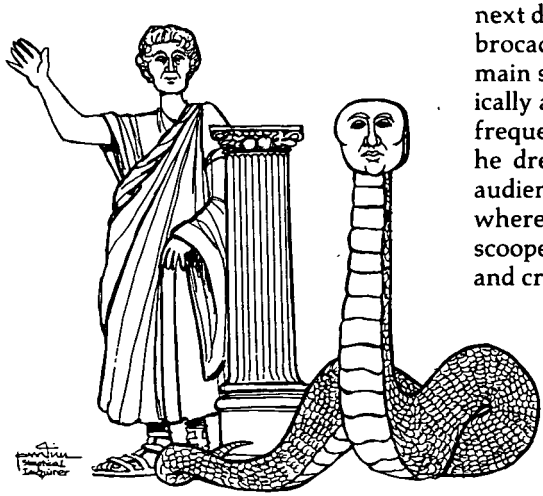
of the strolling mountebank. Eventually, Alexander took up with a partner, an astrologer nicknamed "Nutsy." Together, they traveled about swindling the local "fatheads." Their biggest score was a wealthy woman who had come to Bithynia from Macedon many years before. When she decided to return to Macedon they tagged along. In Macedon, Alexander and his colleague first encountered the local breed of snakes. These were quite enormous; at the same time they were also docile and harmless. Alexander and Nutsy cooked up a scheme for using one of these snakes to establish an oracle to rival Delphi. After some debate, the would-be prophets decided on Abonuteichos as the site of their oracle: the town and surrounding province of Pontus would provide an ample supply of superstitious rubes, better provided with money than brains.

To launch their enterprise, they planted bronze tablets in the sanctuary of Apollo at Chalcedon. The inscriptions on the tablets stated that Asclepius and his father Apollo were moving forthwith to Abonuteichos. When the citizens of Abonuteichos heard of this miraculous event, they immediately voted to erect a temple and started to dig the foundations. Alexander was by now back in Abonuteichos, sporting the appropriate ensemble of a high-class prophet: flowing hair, purple shirt, and scimitar, in the style of Perseus. Alexander had manufactured a Sibylline oracle identifying Abonuteichos as the birthplace of a prophet. The oracle included a cryptogram identifying Alexander as the prophesied one.

> One who will show, first, the primary unit, then a decade thrice over,
> Followed by five other units, then twenty plus twenty plus twenty;
> Numerals four which add up to the name of a man to defend us!

(Primary unit = 1; decade thrice over = 30; 5 other units = 5; and 20 plus 20 plus 20 = 60. In the Greek way of using letters of the alphabet to represent numbers, 1 + 30 + 5 + 60 would be written A, L, E, X. "A man" is *andr-* and "to defend" is *alex.*)

The final step was the epiphany of Alexander's god. One night he buried a blown-out goose egg in the excavation for the new temple's foundations. He had placed a baby snake in the eggshell and carefully sealed it up with white wax and white lead. The next day Alexander, clad only in a gold brocade G-string, appeared in the main square of town. Babbling ecstatically and incoherently (except for the frequent words *Apollo* and *Asclepius*), he drew an awed crowd. He led his audience to the site of the temple, where after singing some hymns he scooped up the previously buried egg and cracked it open to reveal the baby snake, which he claimed to be Asclepius. Alexander hurried home, where he lay low for several days to let the suspense build and allow the word of the miraculous birth to spread throughout



the surrounding province.

Finally, Alexander let the frenzied mob in to view a further miracle: the baby snake had grown to enormous size virtually overnight and now had the head of a man! The snake was of course one of the tame Macedonian variety; Alexander had wrapped it around his body so that the head was tucked under his arm, out of sight. A linen mask provided the god's human face. Eventually the human-headed snake (now named Glykon) would grace pictures, models, and statuettes—even the coinage of Abonuteichos.

An early Roman coin bearing an image of Glykon. (from Harold Mattingly's *Roman Coins from the Earliest Times to the Fall of the Western Empire*, Methuen, London, 1967).

Having equipped himself with a god, Alexander went into the oracle business in a big way. He directed those seeking predictions to write their queries on scrolls, which they were to seal with wax or clay. He would then take the scrolls to the god; they would later be returned to the clients, seals intact, but with the answers to their questions miraculously written underneath. Alexander had mastered several tricks of the trade: with a hot needle, he would cut through the wax underneath the impressed seal, read the contents of the scroll, add an appropriate pronouncement below the question, and then restore the seal by a second passage of the hot needle; alternatively, he would make a cast of the impression on the seal, using a quick-setting plaster, break the seal, carry out the necessary hocus-pocus, and then make a new wax or clay seal with the cast of the original. Later, for an appropriately enhanced fee, Alexander had Glykon deliver prophecies in person: the windpipes of some birds were fitted together and inserted into the back of the linen mask; a confederate outside the room provided the voice of the god.

As his oracle grew in fame and stature, Alexander created a three-day mystery ceremony (like that conducted at Eleusis). After an expulsion ritual in which Epicureans and Christians were enjoined to be gone, the ceremony presented in turn the births of Apollo, his son Asclepius, and the new god Glykon. It ended with the love affair of Alexander and the goddess Selene. Throughout, Alexander made sure his flowing robes frequently parted to show his golden thigh (a piece of gilded leather tied over his upper leg). This golden thigh led to learned speculation by some university professors about whether Alexander had the soul of Pythagoras or merely one similar to it. (One cannot but be forcefully reminded here of the disgraceful role played by various "professors" in validating the spurious claims of certain psychics.)

Needless to say, occasionally the oracle's predictions did not work out. On one occasion, the governor of Cappadocia, Marcus Sedatius Severianus, sought a prophecy before he marched his forces into Armenia to battle the Parthians. Upon receipt of a favorable prediction, Severianus set out to do battle with the Parthians. When Severianus and his forces were unfortunately (and unexpectedly) annihilated by the Parthian king, Alexander quickly substituted an

unfavorable prediction for the previous favorable one. (Many modern psychics, such as Jeane Dixon, have developed the manufacture of the "retrodiction" to a high art.)

Even when Alexander could not fudge the record in this way, the true believers who sought auguries from Glykon found it easy to explain away misfired predictions. When Publius Mummius Sisenna Rutilianus, a prominent Roman official, sought Glykon's advice about an appropriate teacher for his son, the oracle directed: "Choose thou Pythagoras. Choose the great poet and teacher of battle." Within days of this pronouncement the boy died. Rutilianus immediately saw the true import of the god's advice: his son was to be taught by Pythagoras and Homer, both of whom were dead!

From Abonuteichos the influence of Alexander's cult spread into the surrounding provinces. Eventually it spread to Italy and Rome (partly through the sponsorship of Rutilianus, whom Alexander dominated to such an extent that in response to an oracle he married Alexander's daughter). Members of the imperial court sought advice from Glykon, their questions providing Alexander with much information about political undercurrents at Rome as well as unsurpassed opportunities for blackmail. Even the emperor Marcus Aurelius was not immune to Alexander's blandishments. During the Marcomannic War, Alexander sent the emperor an oracle directing him to throw two live lions into the Danube.

> Whereupon there shall come in an instant
> Victory, glory bounding, and with it the peace we so cherish.

The sacrifice was duly performed and the Roman forces immediately suffered a catastrophic defeat. In the face of this apparently failed prediction, Alexander blandly pointed out that the god had prophesied victory without specifying whether it was to be Rome's or the enemy's. Alexander also tried to get the emperor to change the name of Abonuteichos to Ionopolis and permit the city to issue a coin with Glykon's image on it. (This campaign was ultimately successful. Abonuteichos became Ionopolis, a vestige of this name being preserved down to the present by the Turkish village of Ineboli that occupies its site. Examples of the coinage showing Glykon may be seen in many museums.)

Lucian had tried to influence Rutilianus against his marriage to Alexander's daughter. This was in vain, because Rutilianus, although otherwise a reasonable man and a responsible public official, was virtually insane on the subject of religion. To expose the bogus oracle, Lucian sent hoax inquiries to the shrine:

> Query: Is Alexander bald? (Apparently he wore a wig to disguise the fact.)
> Answer: Sabardalchu malach Attis was different.

He submitted under different names two hoax scrolls bearing the question: "Where was Homer born?" (This was a trick question in that one possible answer was the town of Amastris, a political and commercial rival of Abonuteichos with whose Epicureans Alexander had a longstanding feud.) The first scroll was submitted by one of Lucian's servants, who responded to Alexander's probing questions that his master wanted a treatment for a pain in the side.

> Answer: Rub it, I bid, with a "cytmis" plus foam from the mouth of a race horse.

When the second scroll was presented, Lucian let Alexander overhear that the questioner wanted to know whether to go to Italy by ship or by land.

> Answer: Ships I forbid thee—the way across land with thy feet shalt thou follow.

Lucian also submitted a scroll on the outside of which he had written that it was a request for eight oracles. In fact the scroll contained the single question: "When will Alexander the quack magician be caught?" Needless to say the eight oracles supplied were, as lawyers like to say, nonresponsive.

Not content to wage his war against shams at long range, Lucian took the war into the enemy's country. With an escort supplied by the governor of Cappadocia, Lucian journeyed to Abonuteichos, where he greeted Alexander as described at the beginning of this article. The enraged believers were about to mob him when Alexander intervened, telling the crowd that Glykon could turn even bitter enemies into friends. After a brief colloquy, in which Alexander reproached Lucian for his advice to Rutilianus against the marriage, Lucian found it discrete to pretend a new-found friendship for Alexander. Alexander for his part arranged for a boat to carry Lucian on the next stage of his journey and deliver him to Amastris.

On the journey to Amastris Lucian discovered that the crew had been ordered by Alexander to throw him over the side. The captain prevailed on the men not to harm their passenger and he was set safely ashore. In revenge, Lucian tried to get up a lawsuit against Alexander, but Avitus, the governor of Bithynia and Pontus, got him to drop the case on the grounds that Rutilianus's influence would prevent him from punishing Alexander even if he were caught *in flagrante delicto.*

Alexander's life ended with another failed prophecy: he had predicted that he would live to be 150 and die by being struck by lightning. He did not live half so long, dying before the age of 70 of a gangrenous leg.

As good skeptics we should be willing to ask how much, if any, of Lucian's tale of Alexander of Abonuteichos is true. For a long time, classical scholars regarded Lucian's *Alexander* as an example of the insignificance of the targets of Lucian's personal satires. The most recent scholarship has confirmed Lucian, at least as far as the broad outlines of his story are concerned. The cult of Glykon was in fact widespread and influential. The name of Abonuteichos was indeed changed to Ionopolis. The city did in fact issue coinage bearing the likeness of Glykon. On the other hand, Lucian may have copied descriptions of the mechanics of Alexander's oracular frauds from books attacking other oracles. These circumstantial details may come from Celsus's *Against the Magicians* (no longer extant) and Hippolytus's *Refutation of All Heresies.* Lucian's personal tests of Alexander's oracular powers may derive from Oenomaus's *Detection of Impostors.* It is, however, fair to point out that many fraudulent oracles may have used the same tricks, and Lucian may have adopted the tactic of exposing the fraudulent nature of Alexander's oracle through submission of bogus questions because it was likely to be effective.

Lucian carried on his war against sham and imposture in many of his other writings. All told, his surviving writings comprise nearly 1,300 pages of Greek text. In addition to his *Alexander,* Lucian wrote *The Death of*

Peregrinus, a satire that targeted the Cynic philosopher Peregrinus, who committed suicide in a spectacular act of self-immolation at the Olympic games.

The influence of Lucian on later writers was profound. His works were imitated, plagiarized, extended, updated, and otherwise mined for usable ideas by noted writers, including Erasmus, Thomas More (*Utopia* owes much to Lucian's *True History*), Jonathan Swift (*Gulliver's Travels* is another spinoff of *True History*), Ben Jonson (the title character of Jonson's *The Alchemist* strongly resembles Alexander), Christopher Marlowe, and Goethe.

Desiderius Erasmus was the most influential later writer to draw inspiration from Lucian's *Alexander*. He prepared one of the first translations of *Alexander*. The *Colloquies* of Erasmus (a collection of readings intended for beginning students of Latin) contains a Lucian-inspired dialogue entitled "Exorcism or The Spectator," in which a group of hoaxers expose the superstition and credulity of a foolish priest. Ironically, the character of one of the hoaxers was probably based on Erasmus's friend Thomas More.

Lucian has also been mined by writers of a less skeptical bent. Immanuel Velikovsky, in *Worlds in Collision*, quotes from Lucian's *Astrology* to support his interpretation of Homer's *Iliad* as a coded recounting of the natural disasters caused by Venus's encounters with other planets after its ejection as a comet from Jupiter.

> All that he [Homer] hath said of Venus and of Mars his passion is also manifestly composed from no other sources than this science [astrology]. Indeed, it is the conjunction of Venus and Mars that create the poetry of Homer.

Because Lucian insists on identifying Aphrodite with the planet Venus (as did everyone else in antiquity), Velikovsky has to add the following idiotic gloss on the text:

> Lucian is unaware that Athene is the goddess of the planet Venus and yet he knows the real meaning of the cosmic plot of the Homeric epic, which shows that the sources of his instruction in astrology were cognizant of the facts of the celestial drama. (*Worlds in Collision*, p. 251f)

Leaving aside the arrogance that leads Velikovsky to "correct" the classical scholarship of a classical author, Velikovsky ignores the possibility suggested by some classical scholars that Lucian's *Astrology* was written to satirize exactly the kind of farfetched exegesis that is Velikovsky's *metier*. Even today, over the distance of nearly two millennia, Lucian and his skeptical descendants are still sinking their teeth into humorless cranks.

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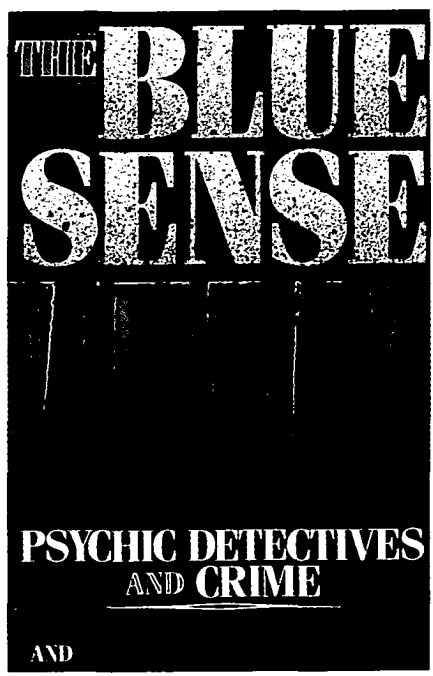
Book Reviews

Black Noses and Blue Nonsense

The Blue Sense: Psychic Detectives and Crime. By Arthur Lyons and Marcello Truzzi. Mysterious Press, New York , 1991. 314 pp. Cloth, $19.95.

ROBERT A. BAKER

Just in case we didn't know, Arthur Lyons and Marcello Truzzi tell us that the Soviets agreed to eliminate medium-range missiles from Europe because Uri Geller beamed thoughts of peace to the Russian negotiators. In 1980, moreover, psychics were used in planning the rescue of American hostages in Iran, and in 1981 they were used in the attempted rescue of General James Dozier, who had been kidnapped by the Italian Red Brigade. In 1982 psychics were used to "remote view" the house of General Noriega, and in 1983 to locate the terrorists responsible for the 241 U.S. servicemen killed in Beirut. Finally, in 1985 the U.S. Air Force advocated training its own psychic performers for a number of different and important chores. Psychics have also been used in jury selection as well as by the police to help locate missing people, to find missing bodies, and to finger murderers. Since two-thirds of the American population believes in extrasensory perception and psychic abilities, why, the authors ask, should military officers, lawyers, and cops be exempt? I was so saddened by these blatant examples of institutionalized folly that I immediately assumed that "the blue sense" referred to the blues. I was mistaken.



Since cops do depend so much on intuition, hunches, gut-feelings, and the like, it is easy for them to believe in psychic phenomena and difficult for them to understand the role that years of practical experience and subtle environmental cues play in their "gut

reactions." It is clear they are not psychologists and, particularly, not *anomalistic* psychologists. Nevertheless, both cops and psychics, the authors tell us, possess "the blue sense," which gets its name from the common color of police uniforms. The hunches that send cops down alleys or around corners and the foreboding sense of danger that causes them to draw their guns—or any other practical use of their intuition that goes beyond what they can see, hear, or smell—is now referred to as "the blue sense." A few years ago it was called "the sixth sense," a term that has apparently outlived its usefulness and obviously lacks the aura of glamour and mystery supplied by a "color" name. In some circles it is still called "intuition," and although it is not fully understood it is by no means an unfathomable psychological mystery. (See Malcolm R. Westcott, *Toward a Contemporary Psychology of Intuition*, Holt, Rinehart & Winston, 1968.)

In their carefully researched book, Lyons and Truzzi attempt to answer just about every reasonable question one might ask about psychic detectives and their alleged "hits" or successes. They do make a major effort to resolve the issue of whether a "blue sense" exists or whether such an assumed ability is merely nonsense. In the early chapters the authors provide an interesting historical survey of psychic sleuths, and they review the definitely unsupernatural techniques of unconscious body movements, the intimidating rituals of thief-magic, or bluffing, and the use of exaggeration by many psychics and mediums who, when subjected to carefully controlled tests, as in the case of Jacques Aymar, fail miserably. To skeptics it is especially interesting that some of the best of the psychic detectives deny they possess any psychic ability at all. Janos Kele, famed for locating missing persons, argued, "I am only a good psychologist."

Although the authors repeatedly state they are making every effort to be scrupulously fair, one doesn't have to read too far or too long before one realizes they have convinced themselves that the psychics' claims are credible. They do, nevertheless, temper their convictions with a grain of salt:

> It must be remembered that evidence is always a matter of degree and that all these tales are based mostly on anecdotal reports. Their validity *as scientific evidence* depends upon human testimony, and psychologists who study human behavior recognize that perception and memory are frequently filled with error. . . . However, many researchers think it would be foolish to dismiss these cases completely just because as scientific evidence they are weak or lightweight. (p. 36)

Apparently the authors believe there is definitely "something" to psychic detection and proceed to cite as much evidence in its favor as they can amass. Curiously, they also state all of the skeptical arguments against this conclusion. The result, though it may well leave readers believing they are on a teeter-totter, does manage to keep their interest and forces them to turn the pages. No doubt this stylistic strategy stems from Lyons, who is an excellent mystery writer and a master at keeping his readers' interest aroused. It also makes it clear that the authors intend their book to appeal to a mass rather than a "specialized" audience. As a truly comprehensive survey of the psychic behavior field in general and psychic detectives in particular, it is the best book we have thus far.

Lyons and Truzzi do an excellent job in dealing with the Dutch psychics

Croiset and Hurkos, pointing out that they had many, many more misses than hits (see P. Hoebens's articles in *SI*, 6[1]:17-28, and 6[2]:32-40). They also devote an entire chapter to fraudulent psychics; yet, strangely enough, they take CSICOP to task for its vigorous opposition to all such deceptions. They note, "Perhaps groups like CSICOP should stop attacking psychics and join with them in their call for licensing. After all, if the hard-line critics are right and real psi is just an illusion, and if a proper set of credential-establishing procedures could be instituted, none of the applicants . . . should be able to pass the formal exams" (p. 133). The authors also scold skeptics for doubting these wonder workers and throw in lots of facile and aphoristic plums, such as: "True disbelievers at times behave as unscientifically as do 'True Believers,' " and "Whereas the rational and scientific posture toward a claim with inadequate evidence must be nonbelief, many skeptics express active disbelief" (p. 132). Again, "In other words, though some things may seem highly improbable, science ultimately cannot say anything empirical is absolutely impossible" (p. 134). Then they quote Mario Bunge to the effect that suppressing dissent "in the name of the orthodoxy of the day is even more injurious to science than all of the forms of pseudoscience put together" (p. 134). These aphorisms are supposed to persuade the reader that the case for psychic validity is just as scientifically and logically sound as it is for any other accepted empirical fact. Unfortunately, it isn't.

It is very clear that the nation's psychic detectives have, at last, acquired their champions. Although at times they pose as pseudo-skeptics, Lyons and Truzzi are clearly out to convince all comers that "the blue sense" exists and that in certain heads at certain times it is valid. In their words:

> Even a psychic scoundrel like Peter Hurkos, who frequently lied about his successes, sometimes seems to have produced hits that we find difficult to dismiss. (p. 135)

Again and again throughout their book Lyons and Truzzi use the same arguments that were employed at the turn of the century by all those true believers in spiritualism who moved heaven and earth to convince everyone that just because a medium was caught cheating on one or more occasion, this does not explain all of the other occasions on which he or she apparently performed successfully. While Lyons and Truzzi review the psychic's use of cold readings, self-fulfilling prophecies, multiple end-points, the stock spiel, the Barnum effect, retrospective falsification, misrepresentation, and all of the other scams in the psychic's armamentarium, they conclude:

> Discounting fabrications and confabulations by psychics and their biographers, media distortions, and cases of outright fraud, there remains a considerable body of documented cases in which psychic sleuths have scored impressive and seemingly inexplicable successes. (p. 155)

This conclusion is supported in the next chapter with an in-depth analysis of a number of murder cases in which psychics were "helpful." Yet, again, the authors hedge by stating at the end of the chapter:

> Even calling them psychic "detectives" or "sleuths" may itself be misleading. The psychics really claim only to be extraordinary witnesses. At best, they should be

> viewed as consultants. Many of the psychics we interviewed repeatedly reminded us that they do not see themselves as *solving* crimes. The police must solve them. The psychic only tries to help by providing what often seems to be a better-than-chance set of directions which the police might pursue. (p. 187)

The authors conclude with a statement from Ingo Swann to the effect that, if a psychic is successful once, then everyone expects him or her to be successful on demand. This is analogous to saying that because I won that state lottery one time everyone expects me to win it every time I bet! Chance, it should be obvious, is at work for both lottery numbers and "successful" psychics. Swann is certainly correct. Just because he guessed correctly *once* should never be cause for believing he'll guess right *again.*

In another chapter the authors provided a fascinating look at how the "myth of the psychic" can be used to con felons into confessing their crimes because they believe the psychic knows they are guilty; or in another context to produce "cover" stories or to "launder" information already obtained. They also look at possible uses of psychics in the courtroom and some of the legal problems that arise when the judicial system has to come to grips with the psychics' premonitions or supposed foreknowledge of crimes to come. The use of psychics to elicit confessions from the guilty is certainly preferable to the truncheon or the rubber hose, but it may well raise some sticky questions of due process.

In summing up their book Lyons and Truzzi modestly claim they never intended to supply any final answers but only to evaluate the arguments and point out directions for future research. Again, they make the point that the case for a "blue sense" remains not proved, but *nonproof* does not constitute *disproof.* Most psychologists would take exception to their next statement, that "intuition remains a largely mysterious and perhaps even transcendent capacity." Recent studies in cognitive science have shown clearly that a considerable amount of information processing, memorization, and learning takes place automatically at unconscious levels in the central nervous system. (See Jeremy Campbell, *The Improbable Machine,* Simon & Schuster, 1989.) What we call "intuition" is probably nothing more than the conscious mind's dim awareness that the unconscious has already solved the problem and is trying to provide the answer. We now know that we *know* much more than we think we know. When this information wells up from below and crosses the threshold of awareness we call it a "hunch" or an "intuition." It is in no way "a transcendent human capacity."

The authors also warn that it is a capital mistake to theorize before one has data. An even greater error, however, is to base our theories on faulty, erroneous, or misleading data. Although Lyons and Truzzi have done their best to convince us that the data for a "blue sense" is sound, hard, and flawless, it is, in fact, none of these. What we have for the most part are case reports from either the psychics themselves or those they have persuaded. Such data are unsound, soft, and flawed. Controlled laboratory studies have failed to support such a sense. In sum, there can be but one conclusion: the evidence for a "blue sense" is not one whit stronger or better than the evidence we had around the turn of the century for the ability of mediums to converse with the dead. Those who wish to believe it *will,* those who choose not to *won't.*

In their zeal to mystify, amaze, and confound, the authors overlooked another sense much more acute, accurate, and reliable: the canine sense of smell. Over the centuries bloodhounds, German shepherds, and their kin have located more missing persons, dead bodies, drug stashes and caches, and have helped solve more crimes than the psychics ever have or ever will. We certainly would be justified in referring to this canine skill as the "Black Sense" after the fact that most dogs' noses are black. A crime book equally as entertaining and informative about the cracking of tough cases through doggy diligence and a sensitive snoot could certainly be written—and probably has been. If I were a cop faced with a difficult case with few or no clues to go on and were given the choice of using a "black nose" or a "blue psychic," I'd opt for the black nose every time.

Robert Baker is professor emeritus of psychology, University of Kentucky, and author of They Call It Hypnosis.

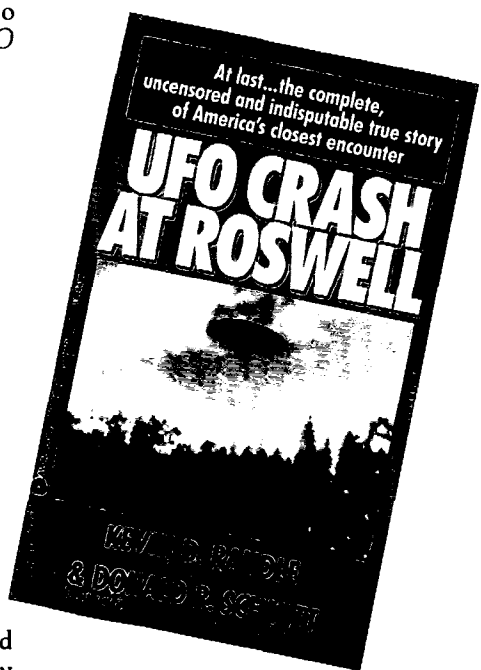
Roswell UFO: Coverups and Credulity

UFO Crash at Roswell. By Kevin D. Randle and Donald R. Schmitt. Avon Books, New York, N.Y., 1991. 325 pp. Paper $4.95.

PHILIP J. KLASS

This is the publisher's promo printed on the back cover of *UFO Crash at Roswell:*

> On July 3, 1947, a rancher came across the wreckage of an alien spacecraft in the high desert of New Mexico. Several days later, the bodies of four extraterrestrials were discovered a few miles from the alleged crash site. On July 8, 1947, the U.S. Army Air Force cordoned off the area around Roswell, New Mexico, and removed all evidence of one of the most astonishing events in recorded history. THESE ARE *FACTS*—SUPPORTED BY NEWSPAPER REPORTS, GOVERNMENT DOCUMENTS, AND EYEWITNESS ACCOUNTS—HIDDEN FROM THE PUBLIC FOR 40 YEARS . . . UNTIL NOW!



In reality the book is an expanded clone of *The Roswell Incident*, by

Charles Berlitz (of Bermuda Triangle fame) and William L. Moore, published 11 years ago. Its revelations were characterized at the time as the "Cosmic Watergate" by Moore's longtime partner, UFOlogist Stanton T. Friedman, but President Carter did not resign as Nixon had done.

Randle and Schmitt (R/S) located and interviewed many "new" (alleged) witnesses, some of whom emerged after the Roswell incident was featured on several popular network TV shows. "Almost every one knew two or three others who had some kind of knowledge about the events of July 1947," R/S report (p. 177). The authors are quite certain that *four* ET bodies were recovered whereas Berlitz/Moore (B/M) quoted numbers ranging from six to thirty.

This book, like its predecessor, proves that there is indeed a "crashed-saucer coverup"—*not* by the U.S. government as both books charge, but by their authors, who omit lots of hard data that would disprove their crashed-saucer claims.

Example: Both books claim that crashed-saucer debris, discovered by "Mac" Brazel on his ranch near Corona, New Mexico, was flown in early July 1947 to Wright-Patterson Air Force Base, in Dayton, Ohio, for analysis by Air Materiel Command's (AMC) top scientists. R/S report interviewing dozens of civilians and low-level military personnel who claim to have seen the crashed saucer debris and/or ET bodies, or talked with people who had, within a few hours after they (allegedly) were recovered.

Yet word of this remarkable event somehow failed to reach a top Air Force intelligence official in Washington—Brig. Gen. George Schulgen. Roughly two months *after* the alleged recovery, Schulgen wrote to Lt. Gen. Nathan Twining, AMC Commander, to seek his opinion on what UFOs might be. Hundreds of reports had been received since June 24, when private pilot Kenneth Arnold's sighting made headlines around the nation.

On September 23, 1947, Twining replied to Schulgen in a letter then classified "Secret." R/S tell their readers that "Twining's conclusion [was] that flying discs were real" (p. 108). The authors fail to mention Twining's important caveat: *"Due consideration must be given the following . . . the lack of physical evidence in the shape of crash recovered exhibits which would undeniably prove the existence of these objects."* Berlitz and Moore (B/M) also chose to omit Twining's important caveat in their earlier book.

In March 1985, five years after the B/M book was published, the Air Force declassified many intelligence documents dating back to the late 1940s. Included was a 26-page document, originally classified "Top Secret," dated December 10, 1948, prepared by the USAF's Directorate of Intelligence and the Office of Naval Intelligence, titled "Analysis of Flying Object Incidents in the U.S." Highlights of this document were published in the July 1985 issue of the *MUFON UFO Journal.*

If a crashed saucer and four ET bodies were recovered in July 1947—more than a year before this "Top Secret" document was prepared—clearly somebody forgot to inform the USAF's and the Navy's top intelligence officials. Their report reveals that as of late 1948 top USAF and Navy officials were puzzled by many UFO reports. With good reason, they speculated that UFOs might be Soviet reconnaissance vehicles, developed by German scientists captured during the closing phases of World War II.

From my lengthy telephone conversation with Randle on November 27, 1989, I know that he was familiar with this Top Secret USAF/Navy

intelligence report on UFOs. *Yet it is not even mentioned in the new 327-page book.* However, R/S repeatedly accuse the U.S. government of coverup!

The debris recovered from Brazel's ranch, after being flown to 8th Air Force headquarters in Ft. Worth on July 8, 1947, was identified by an Air Force meteorologist as a weather balloon carrying a radar tracking device made from balsa-wood sticks and metal foil-coated paper. R/S, like B/M, charge this was a disinformation-coverup.

Three persons were firsthand witnesses to the original debris: rancher Brazel and two officers from the Roswell base who accompanied him back to the ranch to recover it. One of these was Major Jesse Marcel, an intelligence officer, and the other was Captain Sheridan Cavitt, head of the Counter Intelligence Corps (CIC) office. *Cavitt is the only one of these three firsthand witnesses who is still alive. But R/S do not mention him by name until page 273,* where they cryptically inform the reader that he does not support their crashed-flying-saucer/alien-bodies tale. In Appendix G, the book lists and briefly describes 54 "Relevant Persons" whom the authors consider to be key principals in the incident. *Cavitt is not one of those listed!*

R/S prefer to rely on the more than 40-year-old *claimed* recollections of the dozens of other second- and third-hand witnesses—refreshed by several national TV shows that featured the Roswell incident and by their loaded interview questions. R/S credulously accept almost all such recollections even when they conflict with one another or with hard data, such as Twining's letter, the 1948 USAF/Navy intelligence assessment, once "Secret" documents released by the Central Intelligence Agency, and newspaper stories quoting the principals.

Example: According to one R/S source, three C-54 transport aircraft loaded with crashed-saucer wreckage took off on July 9, 1947, for "short flights to Los Alamos" (p. 213). If R/S had checked, they would have learned that on that date the first Los Alamos airport was still under construction. When it began operations two months later, it had a short *unpaved* runway, which, at the airport's 7,150-ft. altitude, would not be suitable for C-54 aircraft.

One of R/S's sources told them that a giant crate, measuring 15′ × 3′ × 4′ was constructed to transport the four ET bodies by B-29 to Wright-Patterson AFB. This was confirmed by a second source, who said the crate was 15′ × 4′ × 5′. Considering that the ETs are described as being shorter and smaller than Earthlings, it seems curious that it never occurred to Roswell officials to put each body in an ordinary coffin rather than construct a giant 15 ft. long crate (pp. 97, 210), *especially since a 15-foot-long crate could not possibly fit inside a B-29, whose bomb-bay is little more than 13 feet long.*

Ignoring this discrepancy, R/S report that the giant crate with the four ET bodies was flown by B-29 "to Fort Worth. Unloaded there, they were put on another aircraft and flown to Wright Field." R/S never question why the B-29 did not fly the ET bodies nonstop from Roswell to Dayton, which it could easily do.

According to R/S, Maj. Gen. Clements McMullen, deputy commander of the Strategic Air Command (SAC), learned of the crashed saucer and ordered that some of the debris be flown to Washington as soon as possible. According to R/S, the debris was loaded onto a B-29—*which could easily have flown nonstop from Roswell to Washington.* Instead, according to R/S sources, the B-29 flew the debris only as far as Ft. Worth, where it was taken off and loaded onto a B-26 to

fly it to Washington. If R/S had checked, they would have learned that the B-26's range was so short that it would have had to make at least one refueling stop to reach Washington, delaying its arrival.

R/S admit contradictions in the 40-year-old recollections of some of their sources, usually without giving details. Still other contradictions were overlooked by the authors. For example, R/S report on page 46 that Brazel, Marcel, and Cavitt left Roswell "about dusk" to drive to Brazel's ranch—about a 3-to-4-hour drive over unimproved roads. Six pages earlier in the book (p. 40), R/S reported that "it was nearly dark when they reached the ranch. . . ." This suggests either some sort of "time warp" or conflicting recollections from different sources.

According to R/S, Marcel instantly recognized the extraordinary nature of the debris brought back from Brazel's ranch, as did the Roswell Base Commander, Colonel William Blanchard. If true, they should first suspect that the object might be a Soviet reconnaissance vehicle on a mission to reconnoiter the not-too-far-away Los Alamos nuclear laboratory or the White Sands Missile Range, where the U.S. was testing captured German ballistic missiles. After all, in December 1948, the earlier-cited Top Secret USAF/Navy intelligence estimate suggested that UFOs might be Soviet reconnaissance craft.

According to R/S, top Air Force officials were promptly notified, but no one thought to tell Colonel Blanchard that the incident should be kept under wraps. And it never occurred to Blanchard, according to the R/S scenario. Around noon on July 8, the Roswell public-information officer, Lieutenant Walter Haut, issued a press release announcing that one of the mysterious "flying discs" had been found and brought to the base. Within several hours, the word had traveled around the globe, and the news media were bombarding Haut and the Air Force for more details.

Haut now claims that Colonel Blanchard told him to issue the press release because it was his policy to keep the community informed of base activities. R/S ignore evidence suggesting that Haut's recollections are flawed and that he acted on the suggestion of Major Marcel. If ordered by Blanchard, surely the base commander's name would have appeared somewhere in the press release, but it does not. Only Marcel is mentioned. Haut's recollections are denied by the resulting article in the July 8, 1947, edition of the *Roswell Daily Record*, which began: "The intelligence office of the 509th Bombardment group at Roswell Army Air Field announced at noon today, that the field has come into possession of a flying saucer."

R/S readily accept Haut's claim that Blanchard told him to issue the press release to keep the public informed, but the authors also quote sources who claim that Blanchard dispatched military police to block roads leading to Brazel's ranch to keep curious local citizens away from the "crash site." Before the press release was issued, only a handful of civilians were aware of the incident, and the debris was in a remote area and almost impossible to find without Brazel's help.

R/S write: "For any investigation into the Roswell affair to be valid, it must encompass *all the evidence and explain all the facts* (p. 184). R/S offer a strange explanation for their claims that Colonel Blanchard ordered the press release and simultaneously set up an ostentatious road block to keep the public away. They suggest it was a clever strategy intended to coverup the crashed saucer. First tell the public that a mysterious flying saucer has been recovered, then announce the

next day that the object was only a balloon-borne radar-tracking target—and the public and media would quickly lose interest.

If this R/S strategy had been used several years earlier, the U.S. could have been spared the great expense and trouble of trying to keep secret the existence of the Los Alamos atomic bomb facility. First announce that Los Alamos was being established to develop an atomic bomb. Then, the next day, claim there had been a slight mistake—that Los Alamos was being built only to provide a wartime vacation area for overworked scientists. The public and news media would quickly forget Los Alamos.

When William L. Moore learned that Randle and Schmitt were planning to write a book on the Roswell incident he threatened legal action if they plagiarized from his book or subsequent research. This prompted his longtime partner, Stanton Friedman, to break with Moore and cooperate with Randle/Schmitt. But more recently Friedman has patched up his relations with Moore.

One very significant difference between the two camps is over a series of six photos taken in Ft. Worth on July 8, which show Marcel and other Air Force officers with "Roswell debris." Moore/Shandera claim that one photo of Marcel shows him holding "authentic" crashed-saucer debris, while the others show bogus material. Randle/Schmitt correctly note that the debris shown in *all* of the photos is identical.

R/S admit that the material visible in the photos is from a demolished balloon-borne radar target, but they claim it was substituted for the authentic debris. They do not even try to explain how Air Force officials in Ft. Worth would have been able to obtain so quickly debris that so closely matched the description being given by rancher Brazel to news media in Roswell at roughly the same time.

Relations between the two camps will not improve when Moore reads the R/S characterization of the book he coauthored with Berlitz (p. 265). R/S write that "those in the 'know' rejected the book" as simply an update of a 1950 crashed-saucer book by Frank Scully, who was the victim of a hoax. R/S claim the "difference this time was that a few names were named. Even so, the book disappeared quickly." This is an inaccurate "put-down" of the Moore/Berlitz book, which has been published in a number of foreign-language editions and recently was published here in paperback.

Funding for some of the R/S investigative effort, including a 1989 expedition to the "crash site" in an unsuccessful attempt to find debris, was provided by the Hynek Center for UFO Studies (CUFOS). Jerry Clark, editor of the CUFOS *International UFO Reporter*, praised the R/S book in the March/April 1991 issue. Clark claimed the book "records the most thoroughly investigated, the most completely documented event in the history of UFOlogy. The Roswell case is, of course, also the most important case of all." Clark predicted that the "heretofore unkillable canard, that UFO research has made no progress in four decades, [will be] disposed of once and for all."

This reviewer disagrees. The book by Randle and Schmitt demonstrates the credulity of some of today's leading UFOlogists and the superficiality of their investigations.

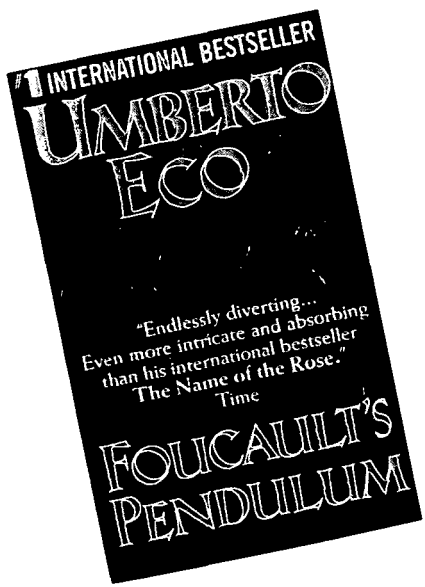
Philip J. Klass, technical journalist and chairman of CSICOP's UFO Subcommittee, has published four books on UFOs and is working on a fifth. Klass also publishes the bi-monthly "Skeptics UFO Newsletter."

Reflections on Reality in Literary Hall of Mirrors

Foucault's Pendulum. By Umberto Eco. Ballantine Books, New York 1990. 537 pp. Paper, $6.95. (Harcourt, Brace, Jovanovich, New York, 1989. 641 pp. Cloth, $22.95.)

ERIK STROMMEN

We know that pseudoscience, occultism, and other fringe belief systems are castles built in the air; for all their elegance and complexity, they are ultimately nothing more than ideas, and bad ideas at that. But we also know that as ideas they are seductive and dangerously intoxicating in their confused reasoning and oblique promises of secret powers revealed only to the select few. How is it possible for people to fall under the spell of such thoughts, and why do they persist in a scientific and nominally rational age? These questions form the basis of Umberto Eco's latest novel, *Foucault's Pendulum.* In less able hands, such questions might be answered with a shallow, "pop psych" lesson on personality and the need to make meaning. But in this book we are treated to a far more thoughtful game, one that is simultaneously a randy romp through the arcane world of "secret knowledge," a subtle commentary on the seductiveness of loose thinking, and a cautionary tale of the perils of those who flirt with true belief just a tad too closely.


#1 INTERNATIONAL BESTSELLER
UMBERTO ECO
"Endlessly diverting... Even more intricate and absorbing than his international bestseller The Name of the Rose." Time
FOUCAULT'S PENDULUM

Umberto Eco's first novel, *The Name of the Rose,* has been described as more widely admired than read, and I suspect this book is likely to be received in the same manner. Most novels are sequences of action, punctuated by brief moments of exposition. Eco's books are sequences of exposition, punctuated by brief moments of action. Eco is a semiologist, so it should not be surprising that since his is the world of ideas, it is in that realm that his efforts are focused. In *Rose,* a medieval murder mystery was interlaced with lengthy discussions of the nature of sin, the symbology of religious icons, and theories of heresy, all to ponder the question: How do we create order in an orderless universe? It was a masterful work. Where else can you find a monk so committed to protecting a particular view of the universe that he would kill to settle the debate of whether or not Christ ever laughed, and whether humor is sinful or divine?

While not nearly as rich as the

subject matter in *Rose*, Eco's erudition continues to be impressive in his latest book. This time, however, his exposition covers systems of mysticism rather than medieval theology (or are they actually the same?). In *Pendulum*, the vehicles for our trip into the arcane are not monks, but modern-day intellectuals. The story centers on three main characters: Causabon, a disillusioned graduate student; Diotallevi, who studies numerological and cabalistic theories in his spare time; and Belbo, an insecure skeptic who believes he can use his computer, Abulafia (named after a medieval cabalist), to help him determine the truth or falsity of paranormal ideas. These men all work at Garamond Press, which has two divisions. The first prints obscure scholarly works, from which no money can hope to be made. The second, the focus of the story, pays for the works of the first (and more) through the delicious racket of fleecing self-financing authors who will pay handsomely to have their occult works published.

Causabon and his coworkers spend most of their time at work bantering good-naturedly about mystical beliefs and arguing the finer points of mystical nonsense. His coworkers reveal their attitude early by introducing him to their "School of Comparative Irrelevance," where vapid and impossible ideas are packaged to sound like serious subjects of study. But behind this veneer of rationality, troubling shadows linger. Diotallevi is only partially a skeptic; he can't shake his belief in coded meanings, revealed through numerical correspondences and the rearranged letters of cabalistic writings. Belbo finds most mystics insufferable, but still believes that every hermetical idea, no matter how stupid, should be given a chance. Causabon, and his girlfriend, Lia, are the most reality-oriented, and we see

"This book . . . coheres as a tremendous meditation on the powers of reason and their corruption, often expressed through highly intelligent and witty characters."

that a jaded Marxian materialism guides their thinking. They find unseen worlds and mystical forces laughable, but intriguing for what they suggest about the human spirit.

Gradually, though, Causabon's skepticism and that of his colleagues is undermined by a complex series of incidents that make reality begin to seem like a game of hide-and-seek. First comes the mysterious Colonel Ardenti, anxious to print a book exposing an occult society descended from the Knights Templar. He claims to have found a medieval document that proves their continued existence as a secret order studying the arcane forces of the earth, and that his life is in danger. Our heroes laugh, but abruptly he is murdered. Or is he? Then in Brazil, Lia falls into a trance at an ecstatic pagan ceremony, an experience that shakes her faith in rational thought and the liberating power of materialist philosophy. And what about the Comte St. Germaine, who claims to be over 400 years old? Cultured, with impeccable taste and an impressive knowledge of the arcane, his intimate knowledge of the personalities of famous medieval figures has to be pure conjecture. We don't believe he is who he says—do we? And why should he show such keen interest in the publishing house and its crank authors?

The backdrop of these developments is a rich review of the history of cabalist ideas, the strange fate of

the Knights Templar, and questions of how to interpret the fragments of the past that reflect the complex ideas that make up a medieval cosmology populated with invisible beings and unknown forces. The Comte St. Germaine has been introducing our heroes to armies of true believers (all of whom have their secrets), and they get to witness strange and unusual events as a result. Eco winks at us and then plunges right into the thick of it, shoveling his hokum merrily and with great verve, giving life to what is really unconscionably dull material, and injecting his own vitriol into it. As we are initiated into each new secret and contemplate each hidden meaning, the sheer silliness of the theories, the secrecy, and the search for revelation become less apparent. The believers are real, and they are in deadly earnest. Their faith is simultaneously both laughable and frightening in its intensity; they are surely full of themselves, but they carry knives—who can laugh too hard in the face of that?

In such an atmosphere, Causabon and his coworkers hit upon the idea for a guaranteed occult best-seller, to be published by Garamond: a grand conspiracy theory uniting all historical conspiracy theories around the Knights Templar. They decide that all the conspirators of history have been searching for the ability to control nature's forces, and they set out to prove their case by forging links between real and alleged secret societies, creating secret orders, and freely plagiarizing occult works ancient and modern for their material.

Their three rules for creating the conspiracy are simple, and reveal much about Eco's opinion of the quality of mystical ideas: First, connect everything by analogy, in as many ways as possible. ("There is no way to decide at once whether an analogy is good or bad, because to some degree everything is connected to everything else," p. 618.) Second, if the analogies become circular, keep them and use the circularity as evidence of accuracy; and third, keep all the links obvious, and preferably use connections already made by others—this way they feel like established facts. When stumped in their creative reconstruction of history, our heroes feed material into a program on Abulafia that randomizes lines and words and spits out the result; pondering this Delphic output they easily find new links in the resulting "hidden meanings" that allow them to forge ahead. (One printout, dealing with the revealed knowledge embedded in Minnie Mouse, is particularly amusing.)

As they plod through the writings of medievals, divining new cosmologies and uniting disparate and outrageous ideas into a new whole, they develop a reason for all the secret searches that power their book, a reason that reveals Eco's subtle and delicious sense of humor. The underground Knights Templar, they argue, were committed to meeting to share their progress every 16 years (a magic number, of course). Unfortunately, they miss a key meeting of members from two countries when one changes its calendar to the modern system and the other delays. Working from different calendars, the two groups fail to meet and the chain is broken, giving rise to centuries of endless searching and competition to seek out those they were supposed to meet. The irony is marvelous: To keep their secrets, the secret societies send secret emissaries to a secret meeting with unknown persons (to keep their identities secret, of course); as a result, they screw up everything, simply by failing to confirm each other's information!

Our heroes get a good laugh out

of this and so do we, but in the headiness of their success we begin to feel uncomfortable, as they do. The story is too good. Causabon begins having seemingly accidental meetings with a disturbing taxidermist who mutters ominously about the earth's hidden forces. Are the Parisian sewers and subways a grand system for channeling magical forces, designed over the centuries by famous men who were really members of secret societies? When the Comte St. Germaine, who is enthusiastic about the book, casually asks about "telluric currents," only to smoothly drop the subject when he finds that his interlocutors know nothing, we feel a sudden chill. The strange people we used to laugh at now seem menacing; believing in untenable ideas suddenly renders them dangerous, not comic. They seem so fervent and determined; would they kill for the knowledge they believe Causabon and the others possess?

In the end, Causabon finds that he and his colleagues have all been seduced, drawn into the shadowy world where fact and fiction are inseparable:

> I was becoming addicted. Diotallevi was becoming corrupted, Belbo was becoming converted. But all of us were slowly losing that intellectual light that allows you always to tell the similar from the identical, the metaphorical from the real. We were losing that mysterious and bright and most beautiful ability to say that Signor A has grown bestial—without thinking for a moment that he now has fur and fangs.

The joke takes its toll on them, poisoning their ability to reason clearly, and ultimately it exacts a terrible penalty for their loss of bearing.

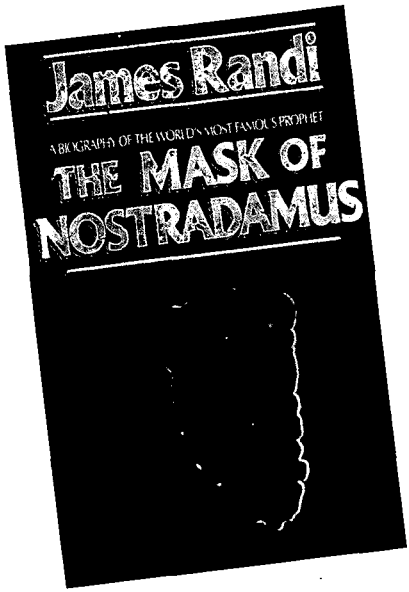
This is not an easy book to read. It is dense with elaborate doctrines, historical information, and highly personal writings and observations by the characters. There are long, almost hallucinatory passages dealing with magical struggles for power and knowledge. The narrative is full of twists and turns and changes in scenery and context that span centuries; just like the doctrines we are exploring, the story is like a hall of mirrors where what has meaning and what does not is not immediately obvious. Given this labyrinth of a story, the ending is a bit of a letdown, a pessimistic appraisal of our ability to throw off the chains of irrational thinking. The narrative shortcomings aside, however, the book nonetheless coheres as a tremendous meditation on the powers of reason and their corruption, often expressed through highly intelligent and witty characters, in exquisite and sumptuous dialogue. For those who can undertake such a winding journey, the ride is definitely worth the effort even if the final destination is less than we had hoped for. Eco has pulled together a powerful indictment of New Age–type thinking and a painful parable of how it taints all those who fall under its spell.

Erik Strommen is director of interactive technology research for the Children's Television Workshop.

Unmasking Nostradamus

The Mask of Nostradamus. By James Randi. New York: Charles Scribner's, 1990. 256 pp. Cloth, $19.95.

HUGH H. TROTTI



James ("The Amazing") Randi has again produced something well worth the reader's consideration: a serious study of the sixteenth-century "prophet" whose latinized name was Nostradamus. The subject is a fit one for Randi's no-nonsense style, which is concise and logical—and impatient with foggy notions and far-reaching speculations masquerading as some sort of "science" of foreseeing future events. Such impatience may apply (and is applied by Randi) even more to Nostradamus's later "interpreters" than to the original figure. Randi makes a good case for taking hostile views of prophets and offers explanations of what they do and how they produce material convincing to some.

But the book is not a simple attack. Randi has approached the subject in a serious way. He has enlisted the aid of historians and historical documents and he visited the places in France frequented by Nostradamus. Such care on his part has resulted in revealing insights into the meaning of some of the seer's writings.

In our age, "believers" have attempted to show that some of Nostradamus's quatrains predict the career of Adolf Hitler, and even the Japanese aggression in 1941. See, for instance, Randi's comments on the quatrain No. 4-68 (his chosen Specimen #9, p. 215). Here, followers of Nostradamus have taken allusions to "the two greatest of Asia & Africa" to mean Japan and Mussolini (Randi citing James Laver's interpretation). And Hitler enters through the name "Hister" for the "Lower Danube." (It is true that the Danube was in ancient times called the "Ister.") According to Randi, the quatrain predicts trouble for perhaps Venice and Genoa, as well as for Malta. (Here, I should like to say that the literate men of the time of Nostradamus read the rediscovered classics of the Greeks and Romans. In the works they read, "Asia" is to be taken to be Asia Minor: and the "greatest" of Asia Minor at that time was obviously Turkey, which had already captured Constantinople and marched on Europe. The "greatest" of Africa we might take to be Egypt, where the Mamlukes were once part of the Ottoman Empire. *The Turks*

were the real menace during the time of Nostradamus. Randi noted that danger elsewhere in his book, but I think it might bear upon Specimen No. 9, which he chose for analysis. Turkey *might* menace parts of Europe as well as such islands as Malta.)

In any event, those with any fascination for the works of Nostradamus—as well as those suspicious of them—will find this volume well worth their time. As a matter of interest, I would add to Randi's opinion that physician Nostradamus's use of remedies from roses was fallacious, to note that such usage was traditional: see Moses Maimonides's recipes, for instance. That twelfth-century physician/philosopher/author mentioned the medical use of rose products extensively in his *The Preservation of Youth;* he had begun in Spain but ended his days in Cairo, an older man at the time of Richard the Lionhearted's crusade. The use of the rose shows that medieval views and "ancient knowledge" were still being taught at the time of the Renaissance in northern Europe.

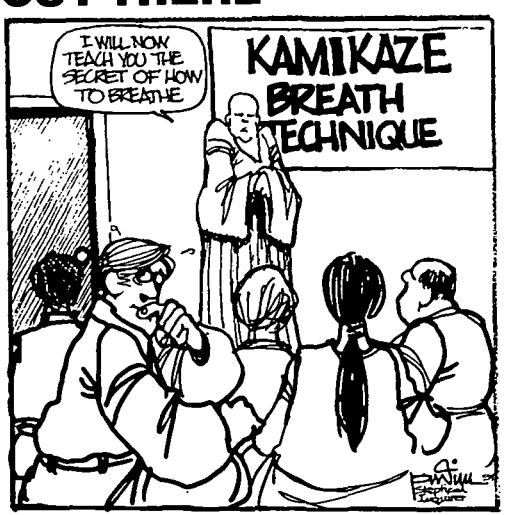
Randi's translations from the French text are straightforward and seem reasonable. The quatrain we have mentioned in this review (Randi's #9), is translated by him thusly (p. 215):

> In the year very near, not far from Venus,
> The two greatest of Asia & Africa
> From the Rhine & Lower Danube, which will be said to have come,
> Cries, tears at Malta & the Ligurian coast.

Finally, I should like to remark that if one finds the writings of Nostradamus to be difficult, they are yet considerably clearer than the so-called "Prophecies of Merlin," which are marvels of obscurity. The interested reader can find these latter in Geoffrey of Monmouth's *The History of the Kings of Britain* (pp. 170-185 of the Penguin paperback edition).

H. H. Trotti is author of Beasts and Battles: Fact in Legend and History? *(Rivercross Publishing, 1990).*

OUT THERE Rob Pudim



FIGOWITZ SUDDENLY REALIZES HE HAS JUST BLOWN $500 AND A WHOLE WEEKEND TO LEARN HOW TO BREATHE WHILE WEARING FUNNY CLOTHES.

New Books

Beasts and Battles: Fact in Legend and History? Hugh H. Trotti. Rivercross Publishing, Inc., New York, 1989. 175 pp., $18.95, cloth. Examines from a fresh view some questions of fact and myth in history. Subjects include Sir Lancelot, Alexander the Great, Noah's Ark, Achilles, Discovering America, Time Machine Gods, and Atlantis.

Beyond the Blue Horizon: Myths and Legends of the Sun, Moon, Stars, and Planets. E. C. Krupp. HarperCollins, New York, 1991. 387 pp. (150 illustrations). $35.00, cloth. Excellent work by astronomer and educator (director of the Griffith Observatory in Los Angeles) about the sky stories that all cultures have created in attempting to give the world meaning and sense and to answer fundamental questions about who we are, where we came from, where we are going, and what is the right thing to do. An extraordinary collection of folk tales and myths and lore relating to the cosmos and our place in it, all placed into context by an astronomer who revels in the wonder and beauty of the natural world. Also addresses stories about UFOs and space aliens, astrology, comet madness, the harmonic convergence, and so on.

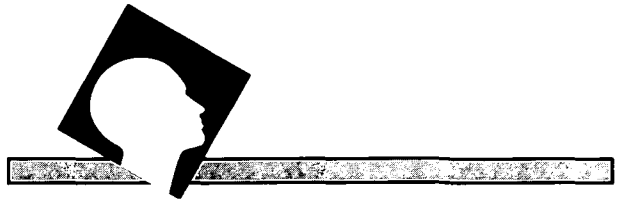
The Hundredth Monkey and Other Paradigms of the Paranormal. Kendrick Frazier, editor. Prometheus, Buffalo, N.Y., 1991. 400 pp. $17.95, paper. Name index. New collection of essays and articles from the SKEPTICAL INQUIRER addresses important issues at the intersection of science and popular belief. Forty-three essays by forty authors, including Carl Sagan, Isaac Asimov, Martin Gardner, Ray Hyman, Paul Kurtz, and Susan Blackmore. Many have written postscripts giving new information. The book takes its title from philosopher Ron Amundson's exposé of the hundredth-monkey myth, published here with his original follow-up and a postscript. Also included are Geoffrey Dean's thorough two-part examination of serious astrology, supplemented by an extensive new third part by him. Other claims examined include fire-walking, graphology, crashed-saucer reports, past-life regression, spontaneous human combustion, and alpha consciousness. There are sections on critical thinking, parapsychology, medical controversies, anomalous experiences, and controversies within science. Intended as a sourcebook of scientifically responsible examinations of the facts and issues surrounding controversies, hoaxes, bizarre mysteries, and popular myths.

The Loch Ness Monster: The Evidence. Steuart Campbell. Aberdeen University Press, Aberdeen, Scotland, 1991. 128 pp., £5.95, paper. Revised paperback edition of book reviewed favorably in the Summer 1988 SKEPTICAL INQUIRER.

Science, Medicine, and Animals. National Academy of Sciences and Institute of Medicine. National Academy Press, Washington, D.C., 1991. 30 pp., $5, paper. Position paper endorsing animal research. Comes out strongly in favor of humanely conducted animal research, a reflection of the organizations' concern over the "broad anti-science message implicit" in the positions of extreme elements of the animal-rights movement.

—*Kendrick Frazier*

Articles of Note



Adler, Shelley R. "Sudden Unexpected Nocturnal Death Syndrome Among Immigrants: Examining the Role of the 'Nightmare.' " *Journal of American Folklore*, 104, no. 411, pp. 54-71, Winter 1991. Since 1977 more than a hundred Southeast Asians living in the United States have died during the night, with no symptoms of illness. Adler sees a connection to the traditional phenomena of Nightmare (or Old Hag): a sensation of wakeful paralysis that scientists now connect with misplaced REM sleep.

Behar, Richard. "The Thriving Cult of Greed and Power." *Time*, May 6, 1991, pp. 50-57. Powerful investigative report on Scientology. The article describes the lives ruined and fortunes lost from Scientology tactics and the crimes committed by the group. "Scientology poses as a religion but is really a ruthless global scam—and aiming at the mainstream." Outlines the tactics Scientologists use to gain followers' money. It is an unusually courageous report against a group notorious for launching dirty-tricks campaigns against its critics. Included is Behar's sidebar "The Scientologists and Me" outlining some of the "strange things" that happened after he started his journalistic research for the article. At least ten attorneys and six private detectives were unleashed by Scientology and its followers to threaten, harass, and discredit Behar. Letters in response to this special cover article appeared in the May 27 *Time*. By late June, the Scientologists were widely distributing a glossy magazine attacking *Time* both as a corporation and as a magazine.

Beyerstein, Barry L. "Brainscams: Neuromythologies of the New Age." *International Journal of Mental Health*, 19, no. 3, pp. 27-36, Fall 1990. A scholarly overview of pop neurologists who water down scientific breakthroughs and promise the public effortless acquisition of new skills.

Burton, Thomas H. "Anti-Depression Drug of Eli Lilly Loses Sales After Attack by Sect." *Wall Street Journal*, April 19, 1991, p. 1. Investigative report on Scientology's dirty-tricks campaign against the drug Prozac. Scientology, which presents itself as an alternative to psychiatry, has been distributing mailings and press releases alleging that Prozac induces murder and suicide. The article quotes a former scientologist minister: "Psychiatrists are in their way. . . . Scientology is a serious conspiracy to derail, psychiatry, pharmaceutical companies, and so on."

Cassileth, Barrie R. "Mental Health Quackery in Cancer Treatment." *International Journal of Mental Health*, 19, no. 3, pp. 81-84, Fall 1990. A report on the use of mental attitude or mental imagery as a remedy for cancer.

Cooper, Marc. "Take This Terrarium and Shove It." *The Village Voice*, April 2, 1991, pp. 24-33. Lengthy critical report into Biosphere 2 project in

Arizona. "The group that built, conceived, and directs the biosphere project is not a group of high-tech researchers on the cutting edge of science but a claque of recycled theater performers that evolved out of an authoritarian—and decidedly nonscientific—personality cult," says Cooper. His report, based on dozens of interviews with current and former associates of the project, "has uncovered how the core group of the Arizona project has little loyalty either to honest and open scientific inquiry or to any ecological quest to save the Earth. Instead, its only allegiance is pledged to one individual: John P. Allen, whose eerie doomsday dogma makes him much more the Jim Jones than the Johnny Appleseed of the ecology movement."

Cranberg, Lawrence. "Pseudoscience, Science, and the Media." Paper presented to 67th Annual Meeting of Southwestern and Rocky Mountain Division, American Association for the Advancement of Science, Lubbock, Texas, May 17, 1991. Identifies the mass media, particularly the Associated Press, as the major vehicles of dissemination of all forms of pseudoscience. Discusses the causative factors in the sociology of journalism.

Crowe, Richard A. "The Return of the Martian Canal Builders." *Optics & Photonics News*, June 1991, pp. 20-22. Critical report by an astronomer of the claims about the Mars "face" and pyramidlike objects on the surface of Mars. Says the methodology of imaging specialist Mark Carlotto, who concluded the feature may not be natural, "is very reminiscent of the Jackson-Jumper projection analysis that purported to show that the image of Christ on the Shroud of Turin . . . possessed three-dimensional information consistent only with a 'supernatural' radiation-scorch origin. In both cases, circular reason is employed. . . . In both cases, the sophisticated imaging analysis is not relevant because to conclude that the feature may not be natural still requires a so-called 'leap of faith.'" Followed by a summary by Carlotto of the image-processing results, which he says justify a closer look by the Mars Observer, scheduled for launch in 1992.

Greenwald, Anthony G., Eric R. Spangenberg, Anthony R. Pratkanis, and Jay Eskenazi. "Double-Blind Tests of Subliminal Self-Help Audiotapes." *Psychological Science*, 2, no. 2, March 1991, pp. 119-122. three replications of a double-blind experiment tested subliminal audiotapes that were claimed to improve memory or to increase self-esteem. In the test, some subjects who thought they were listening to memory tapes had been given self-esteem tapes, and vice versa. After a month of use, neither the memory nor the self-esteem tapes produced their claimed effects. Nevertheless, a general improvement for all subjects in both memory and self-esteem (a nonspecific placebo effect) was observed, and more than a third of the subjects had the illusion of improvement specific to the tape they thought they had listened to.

Horgan, John. "Profile: Reluctant Revolutionary." *Scientific American*, May 1991, p. 40-41. Profile of philosopher Thomas S. Kuhn, the MIT professor whose *Structure of Scientific Revolutions* is called one of the most influential treatises ever written on how science does (or does not) proceed. Here he addresses many of the misunderstandings and misinterpretations of his work, including the persistent claim that he thinks scien-

tists are "irrational." Kuhn concedes he is partly to blame for some of the antiscience interpretations of his book and points out that he is in fact pro-science and also pro-"paradigms" (the term he popularized with his book). It is the conservatism of science, its rigid adherence to paradigms, he here insists, that enables it to produce "the greatest and most original bursts of creativity" of any human enterprise.

Huber, Peter. "Junk Science in the Courtroom." *Forbes*, July 8, 1991, pp. 68-72. Significant report on how by carrying the traditional American adversary system to absurd extremes, judges are allowing "crackpot scientists" to pollute the legal process "at a cost to consumers and business in the billions." Scientifically dubious court testimony that once would never have been allowed is now being used in court to achieve large judgments. Examples are claims that breast cancer can be triggered by a fall, that the whooping-cough vaccine causes brain damage, that incompetence by obstetricians is a leading cause of cerebral palsy, that trace environmental pollutants cause "chemically induced AIDS." "Our courts resound with elaborate, systematized deceptions that fully deserve the label used by the trial lawyers themselves: junk science." A relevatory article that shows how pervasive and invidious pseudoscience can be, especially in invading the Americal legal system. From a forthcoming book, *Galileo's Revenge: Junk Science in the Courtroom* (Basic Books).

Hubner, John. "Worlds of Werner." *West (San Jose Mercury Newsmagazine)*, November 11, 1990, Lengthy report describes how Werner Erhard is not only back—he never left. After selling human potential in the '70s and corporate effectiveness in the '80s, he's now helping Soviet managers help themselves.

Jefferys, William H. "Bayesian Analysis of Random Event Generator Data." *Journal of Scientific Exploration*, 4, no. 2, pp. 153-169, 1990. University of Texas astronomer examines data from experiments that use random-event generators in parapsychological research, such as those of Robert Jahn. These experiments are usually analyzed by classical (frequentist) statistical tests, which summarize the statistical significance of the test statistic as a *p*-value. However, Jeffreys shows that the classical statistical tests are frequently inappropriate to these data and that the resulting *p*-values "can grossly overestimate the significance of the result." Bayesian analysis, which is not affected by stopping rules or the intentions of the investigator, shows that a small *p*-value may not provide credible evidence that an anomalous phenomenon exists.

Lin, Keh-Ming, et al. "Religion, Healing and Mental Health Among Filipino Americans." *International Journal of Mental Health*, 19, no. 3, pp. 40-44, Fall 1990. A report on the Filipino "Santo Nino" faith-healing tradition and how it currently interacts with orthodox medicine.

Maddox, John. "Greek Tragedy Moves in One Act." *Nature*, 350:269, March 28, 1991. News and Views report and commentary on the tragic case of scientist/administrator David Baltimore's involvement with a research article, since retracted, by a researcher accused of errors and falsifications. "The circumstances of this case are . . . both memorable and significant, and will cast a long shadow over the conduct and even the reputation of research."

Mainfort, Robert C., Jr., and Mary L. Kwas. "The Bat Creek Stone: Judeans in Tennessee?" *Tennessee Anthropologist*, 16, no. 1, Spring 1991, pp. 1-19. Challenges claims by cult archaeology proponents that a Paleo-Hebrew inscription was excavated in eastern Tennessee by an employee of the Smithsonian Institution in the late 1800s. The inscribed signs do not represent legitimate Paleo-Hebrew, and the evidence suggests that the stone has been recognized as a forgery by Cyrus Thomas and other contemporary researchers.

Maulin, Michael G. "Seers in the Heartland." *Christianity Today*, 35, no. 1, pp. 18-22, January 14. 1991. The Kansas City Fellowship is a Christian church whose leaders claim the power of prophecy. Maulin describes the services, the behavior of the prophets, and some of their critics.

Morrison, Philip. "The Robust Will to Believe." *Scientific American* (book review), July 1991, pp. 121-122. Review of Stephen Williams's *Fantastic Archaeology* makes some excellent general points about science and evaluation of evidence. "It is process that validates, not outcome. Nothing is too wonderful to be true—*if* it is true."

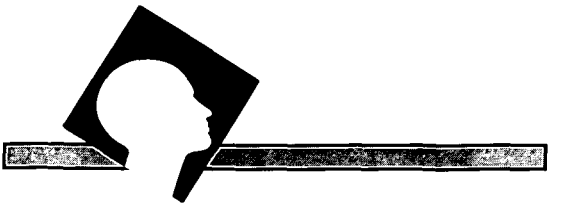
Schrodt, Philip A. "A Methodological Critique of a Test of the Effects of the Maharishi Technology." *Journal of Conflict Resolution*, 34, no. 4, pp. 745-755, December 1990. In 1988 the *JCR* published an article by faculty at the Maharishi University claiming a correlation between people practicing Transcendental Meditation in Jerusalem and a reduction of violence in the Middle East. Schrodt challenges some of the article's statistical assumptions and offers a more parsimonious explanation. There is a reply from the authors of the first article (pp. 756-768).

Skrabanek, Petr. "Reductionist Fallacies in the Theory and Treatment of Mental Disorders." *International Journal of Mental Health*, 19, no. 3, pp. 6-18, Fall 1990. A sardonic look at theories that claim mental illness is caused by "bad blood" or "bad food." Treatments based on such concepts include acupuncture, orthomolecular medicine, and hemodialysis.

Stewart, Donna E. "Emotional Disorders Misdiagnosed as Physical Illness: Environmental Hypersensitivity, Candidiasis Hypersensitivity, and Chronic Fatigue Syndrome." *International Journal of Mental Health*, 19, no. 3, pp. 56-68, Fall 1990. Stewart maintains that the "trendy" illnesses in the title are long-recognized emotional syndromes now being misdiagnosed as physical diseases.

—Kendrick Frazier and Robert Lopresti

Follow-up



Unfinished Business

KEITH HARARY

As many SKEPTICAL INQUIRER readers may be aware, the first edition of *The Mind Race*, which I coauthored with Russell Targ in 1982, contained the following comments about a controversy between Targ and Martin Gardner:

> One well-known critic who frequently condemned psi research editorially in his Mathematical Games column in *Scientific American* . . . criticized the NASA supported ESP teaching machine study carried out at SRI in 1974. He falsely alleged that the subjects in this experiment tore up their unsuccessful data tapes, and only handed in successful ones. He said in his article, "I am not guessing when I say that the paper tape records from Phase I were handed in to Targ in bits and pieces." We now know that he confided to a fellow reporter that he had just made it up, "because that's the way it must have happened." The reporter was so shocked at this disclosure . . . he felt compelled to call up the SRI reseachers to pass on this remarkable piece of news.

When *The Mind Race* was being written, Targ asked that I agree to his including the above-quoted passage in the book. He also assured me that his claim that Gardner had "just made . . . up" his criticism of Targ's earlier work was not only true but that he could provide a witness who would substantiate this claim. As the writing and editing of *The Mind Race* progressed, I asked Targ on several occasions to provide a written statement from his claimed witness. The requested statement did not materialize, however, before Targ's claim ultimately appeared in the pages of the published book. In fact, it never materialized at all.

When *The Mind Race* appeared, Gardner contacted the publisher, Villard Books, requesting that the comments in question be removed from all future editions. As Targ could not bring forth a witness who would substantiate the published claim, Villard agreed to Gardner's request. Given the absence of any supporting evidence from Targ with regard to the statement in question, I agreed with the publisher's position. Under the circumstances, however, I did not have an opportunity to review any alleged evidence Gardner claims to have gathered in support of his original claim about Targ's earlier published ESP-teaching-machine study. When *The Mind Race* subsequently appeared in paperback, the comments in question inadvertently were reprinted by the publisher in spite of the earlier agreement to remove them from subsequent editions. As a result, the publisher reportedly paid Gardner $10,000 and agreed to remove the passage in question from all future editions of *The Mind Race*.

In retrospect, therefore, I believe it was inappropriate to allow Targ's claim about Gardner to appear in *The Mind Race* without at least first receiving a statement in writing from the alleged witness. One would like to believe that the claims of a coauthor can easily and incontrovertibly be

proved to be correct. However, since Targ was unable to provide any solid evidence in support of the claim in question, one is compelled to consider the possibility that it may have been inaccurate.

For my own part, I cannot help but feel that I was inappropriately caught in the middle of a situation in which I would rather never have been involved at all. The controversy regarding this entire matter is really between Gardner and Targ. I therefore wish to publicly disassociate myself from Targ's claim as stated in *The Mind Race* and openly invite Gardner to take this opportunity to firmly establish the facts of the matter in question for the sake of the scientific and historical record if he chooses to do so.

Targ is, of course, free to take any position he wishes. For my own part, I would sincerely welcome any chance to review Gardner's alleged evidence and get to the bottom of this affair once and for all. I believe it would be worthwhile for the sake of the historical record to do so. In a spirit of open scientific discourse, therefore, perhaps Gardner will accept this letter as an open-minded request to support his original contention in an incontrovertible fashion for SKEPTICAL INQUIRER readers.

Reply to 'Unfinished Business'

MARTIN GARDNER

I am grateful to Keith Harary for coming to my defense. My quarrel with Targ is given at some length in Chapter 7 of my book *The New Age*, which apparently Harary has not seen, but let me add here a few more details.

The person who told me that the tapes were in disarray was Persi Diaconis, now a well-known Harvard mathematician. He had been hired by Caltech to visit Targ's laboratory at SRI International, under an assumed name, and report on the experiments Targ and Harold Puthoff had made with Targ's ESP teaching machine. I did not at the time mention Persi's name because I didn't want to blow his cover. Now it doesn't matter. Persi was dismayed by the state of the tapes. Not only were they in bits and pieces, but occasionally, when a machine's recording apparatus failed, students kept their own handwritten records. Nowhere did I say, as Targ wrongly states, that he and Puthoff ever "tore up" any tapes.

An amusing incident occurred during my giving a deposition for my lawsuit. Random House's lawyer asked me if I knew journalist Ron McCrae prior to his passing along to Targ the rumor about my alleged remark. I said I did not. The lawyer then startled me with a copy of a letter I had written to "Dear Ron" that predated McCrea's visit to SRI. I had no recollection of this letter and worried about it all the way home. Fortunately I had preserved my correspondence with SRI's public relations officer, whose first name was Ron. It was to him my letter had been written.

In the addendum to my chapter on all this in *The New Age*, I report that Random House (which owns Villard) did indeed settle out of court for $10,000. My suit against them was based entirely on the fact that Villard's top editor had assured me that the libelous paragraph would be removed

from all subsequent printings of *The Mind Race.* (I had informed him that if this were done, I would take no legal action.) The editor had so little interest in seeing that the paragraph was indeed removed that he did not even check the paperback edition to find out. I learned about it not from him but from a friend who bought the book. A more responsible house would not have published the book in the first place. Recently a new paperback edition was printed with the libelous passage excised at last.

SRI continues not to permit outsiders to look at the raw data of any of the experiments conducted by Puthoff and Targ when they were on the staff. The state of the tapes, and whether they support the figures given in the monograph by Puthoff and Targ, could easily be determined if SRI would allow inspection. It is a scandal that a major research institution would keep its records hidden from the scientific community on the grounds that the research was funded by the military. ■

More on Jahn's Statistics

JOHN P. WENDELL

Robert Jahn states in his letter (*SI*, Spring 1989: 328-329) in reference to his success rate of .5002 in 78 million trials that ". . . the statistical likelihood of this result's occurring by chance is 2×10^{-4}." He apparently is computing this result by reference to the cumulative binomial distribution with the probability of a success equal to 0.5. Although this is the correct way to calculate a *p*-value for a one-sided test, this has nothing to do with "the statistical likelihood of this occurring from chance." All this *p*-value provides is the probability of getting the observed result, or *a more extreme* result, in repeated trials if the probability of success in an individual trial is 0.5. In the case at hand this means the *p*-value is the sum of the probabilities of getting from 39,015,600 successes to 78,000,000 successes in 78,000,000 trials. This sum is almost completely irrelevant since all but one of these 38,984,400 probabilities has anything to do with what was observed.

In a sense it is unfair to criticize Jahn here since he is just following a practice of using *p*-values as a measure of evidence against the null hypothesis that is apparently widely accepted in practice as indicated by the almost universal use of *p*-values in scientific journals (including *SI*). Nonetheless, it is simply not true that the *p*-value is a measure of evidence against the null hypothesis. A good article on this subject for interested SKEPTICAL INQUIRER readers is "Statistical Analysis and the Illusion of Objectivity," by James O. Berger and Donald A. Berry, *American Scientist* (March–April 1988), pp. 159-165. For a more technical account of this issue, see "Testing a Point Null Hypothesis: The Irreconcilability of P Values and Evidence," by James O. Berger and Thomas Sellke, *Journal of the American Statistical Association* (March 1987), pp. 112-122.

So what is the evidence against the null hypothesis that Jahn's results are due to chance? Since the alternate hypothesis framed by Jahn is that the results are due to micropsychokinesis (MPK) and that in the absence of MPK there should be no effect either positive or negative on the chances of an event, a two-sided test and not a

one-sided test is appropriate. James O. Berger and Mohan Delampady, in "Testing Precise Hypotheses," *Statistical Science*, 2, no. 3 (1987): 317-352, provide a method for calculating the probability that the null hypothesis is true in a two-sided test. To apply the Berger and Delampady method we must provide both a prior probability that the null hypothesis is true and a prior distribution for the parameter space. If we want to be objective, it seems reasonable to select a prior probability of 50 percent for the null hypothesis being true. An objective prior distribution for the parameter space is a bit more complicated, but it is clear that Jahn is not claiming that the MPK effect is very large, so we can reasonably restrict it to within one order of magnitude of Jahn's observed result: from 0.498 to 0.502. If we assume a uniform prior distribution within this parameter space (an assumption that Berger and Delampady have shown to be quite robust against a variety of other priors) then the resulting posterior probability is 0.052, a far cry from 0.0002.

One final note: rejecting the null hypothesis that the results are due to chance does not result in accepting the alternate hypotheses that the results are due to MPK, as there are several more plausible alternate hypotheses, involving weaknesses in the experimental protocol. However, even if Jahn's protocol could stand up to scrutiny, the evidence from his experiment is not nearly as persuasive as he claims by at least an order of two magnitudes.

William H. Jefferys's more in-depth treatment of this issue, titled "Bayesian Analysis of Random Event Generator Data," appears in the *Journal of Scientific Exploration*, 4, no. 2(1990): 153-169.

John P. Wendell is professor of accounting at the University of Hawaii, Manoa.

More on Hi-Fi Audio Claims

FRED E. DAVIS

Since the publication of my report on "Hi-Fi Audio Pseudoscience" (*SI*, Spring 1991), new information has come to light on one of those products, several new products have appeared, and further tests have been conducted.

I have learned that the contact enhancer "Tweek" is actually a diluted form of the product Stabilant 22 from D.W. Electrochemicals Ltd.[1] Test results reported by the manufacturer using Stabilant 22a, a more concentrated solution than Tweek, show a reduction in distortion of approximately 0.00005 percent per contact for 100 contacts in series at 1,000 Hz, 1 millivolt and 600 ohms load, with a decreasing improvement above 1 millivolt. It would be redundant to say that is inaudible.

Tice Audio Products has introduced their version of the digital clock for only $350. As Mr. Tice stated, "For those people who claim to hear big improvements when plugging in untreated off-the-shelf clocks, I commend you on your imagination."[2] Likewise. He also suggests that if one clock doesn't work, try two. From the Tice Audio "white paper" discussing the TPT treatment, the chaotic electron motion theory has apparently been abandoned in favor of a new molecular-level noise reduction

system.

For compact discs (CDs), there are cryogenic treatments and new plastic materials to help smooth out that grainy sound. For speaker cables, there are new vibration-absorbing stands to lift the cables off the floor to reduce magnetic interactions with the (ironwood?) floor and eliminate floor vibrations from affecting the signals reaching the speaker. Another manufacturer suggests that since the audio signal in a speaker cable travels outside the conductor (i.e., through the insulator), only natural insulating materials like cotton or silk should be used.

I conducted a brief test in an effort to better understand the consequences of stray reflected laser light within a CD. If reducing internal reflections improves the sound (as virtually all of the CD tweaks promise), then the converse should also be true—increasing the amount of internal reflections should make the sound worse. Also, it is much easier to inject light into a CD than it is to measure the level of internal reflections. In my tests the external sources of light were a helium-neon laser of about 1 mW at 632.8 nm, and a semiconductor laser at 780 nm with a power greatly exceeding 6 mW, the limit of my light power meter. While injecting light from either laser at numerous locations and angles around the disc (both outer and inner edges, over and around the optical pickup from both sides), I could find no audible difference, no change in the error rate, no change in the eye pattern, no mistracking of the servos and, using an interface to my computer, no change in the digital data read from the CD.

For those readers who, when they cannot measure any effect and are skeptical, automatically assume no listening tests are performed, they are mistaken. Also, while anecdotal evidence may be interesting and lead to further investigation, it is not conclusive.

Notes

1. D. W. Electrochemicals Ltd., 9005 Leslie Street, Unit 106, Richmond Hill, Ontario L4B 1G7, Canada.
2. *Stereophile*, January 1991, p. 297.

For Further Reading

Bert Whyte, "Behind the Scenes: The Urge to Tweak," *Audio*, April 1991, pp. 29-32.

Ken Pohlmann, "CD Magic," *Stereo Review*, July 1991, pp. 39-42.

Ken Pohlmann, "Signals: Science, Not Magic," *Stereo Review*, April 1991, p. 26.

Ken Pohlmann, "Signals: Smoke and Mirrors," *Stereo Review*, August 1990, p. 24.

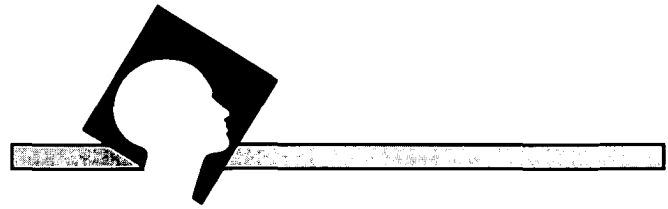
E. Brad Meyer, "The Amp/Speaker Interface," *Stereo Review*, June 1991, pp. 53-56.

Robert A. Pease, "What's All This Splicing Stuff, Anyhow?" *Electronic Design*, December 27, 1990, p. 72.

Fred E. Davis, "Effects of Cable, Loudspeaker, and Amplifier Interactions," *J. Audio Eng. Soc.*, 39, no. 6, June 1991. pp. 461-468.

Fred E. Davis (57 Greenway St, Hamden, CT 06517) is a consulting electronics engineer.

Forum



Keep Your Eye on the Brass Ring

MILTON A. ROTHMAN

The other day I appeared on a morning talk-show on WWOR-TV Channel 9, in Secaucus, New Jersey. Sociologist Marcello Truzzi was there selling his new book, *The Blue Sense*, about psychics who do detective work (reviewed in this issue). There were also a couple of professional psychics, one of whom, Dorothy Allison, is well known as a psychic detective. She described how she had gone down to Atlanta to name a serial killer who had done away with a large number of black children. In retrospect her story appears less than convincing when you read that she actually gave 42 names, none of which were correct (Hines 1988; 46).

I was present in my usual role as the professional skeptic, and my contribution to the discussion was devoted to pointing out that you have to pay attention to what actually happens in these cases: what are the exact predictions and how many times do these predictions give a useful result?

Unfortunately, in spite of my insistence on paying attention to *what happens* instead of *what is said*, I found myself falling into a serious trap toward the end of the session, when the moderator asked one of the psychics to make some predictions about him, the moderator. The psychic proceeded to utter some generalities, such as, "Well, I feel a trip to Florida coming up, and I feel something about a member of the family being sick." The moderator then said some things to the effect that, yes, air fares have been coming down and a trip to Florida would be a nice thing, and yes, there may be some sickness in the family, and a few other things. Then he turned to me and asked, "How do you, as a skeptic, respond to all this?"

My response, I confess, was not very strong. Blame this on a tired brain not being able to process all the predictions and all the responses. I said merely that the psychic had predicted a lot of commonplace events that could happen to anybody. Whereupon there was a lot of hissing and booing. Truzzi came to my assistance by pointing out that the moderator had given a reply based on his interpretation of what the psychic said, and not exactly on what the psychic had really said. That was a bit better.

But as I was riding home in the nice limousine provided by the station, a number of "treppenwörter" began to filter into my mind. (*Treppenwörter* is a Freudian term describing the sharp ripostes you think of as you walk down the stairs after an argumentative party.) After all my talk about paying attention to what actually happens, I had responded entirely to what the moderator said was going to happen: he was going to Florida, there were going to be illnesses in his family. I had no way of knowing

whether he really would have gone to Florida. Probably the idea had been put into his head by the psychic's prediction. I don't know if anybody was really going to be sick in his family; I had only his word for it. In retrospect, I realized that I had been set up by the moderator.

The moral is: *Don't go by what they say; the only evidence that counts is what actually happened.* It's hard to do this in the heat of combat. For this reason, training in dealing with psychics and talk shows must include practice in separating talk from action. Future CSICOP meetings should feature experiential workshops training us in the hard realities of talking with fast talkers.

Note

1. T. Hines, *Pseudoscience and the Paranormal* (Buffalo: Prometheus Books, 1988), p. 46.

Milton Rothman, a physicist, is author of a Physicist's Guide to Skepticism *and* The Science Gap *(forthcoming).*

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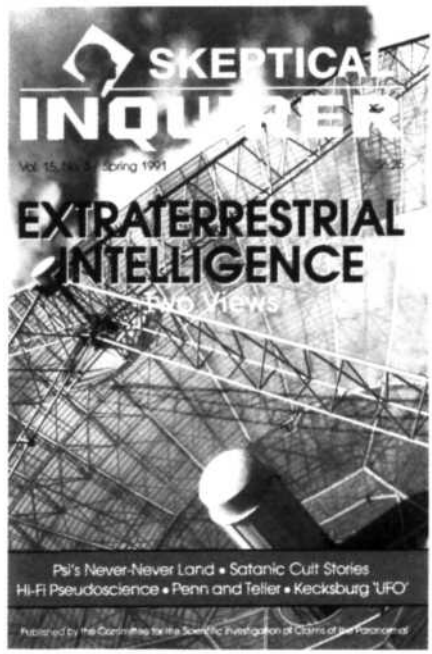
Letters to the Editor

*Our Spring 1991 issue stimulated an unusually large number of letters to the editor, more than double the normal amount—25 alone concerning the two articles on extraterrestrial intelligence. Unfortunately available space didn't miraculously also double and so many excellent letters have to be omitted, but we want you to know we deeply appreciate your lively and thoughtful interest.—*EDITOR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Searching for extraterrestrial intelligence: More viewpoints

Zen Faulkes argues that one term in the Drake formula for the number of "contactable" civilizations in our galaxy has been vastly overestimated ("Getting Smart About Getting Smarts: Evolutionary Biology and Extraterrestrial Intelligence," *SI*, Spring 1991). This term is "the fraction of biospheres that evolve an intelligent species." It is usually taken to be nearly 1.0, but Faulkes estimates it to be about 10^{-9}. He obtains this value by dividing the one intelligent species that has evolved by the estimated 10^9 total number of species that have ever existed. This is an incorrect calculation. It does not tell us the probability that the earth would eventually evolve an intelligent species; it only tells us the probability that a particular species is intelligent. At the very least, he needs to estimate the total number of species that will evolve during the entire course of the earth's life-bearing time-span. For more accuracy, he probably should try to decide which ecological niches are conducive to intelligence and then analyze the dynamics of how they become filled. (I don't think that a million species of beetles is relevant to the calculation.) Unfortunately, I'd guess that this is an impossible job at this time.

Independent of my quantitative criticism, I am not convinced that Faulkes's approach is correct. One can argue that a better estimate is made not by counting species, but by counting the number of (nearly) fresh starts that have been made after mass extinctions. That number is five by Faulkes's count, which makes the estimate 20 percent per start. This approach requires that one know the number of mass extinctions for the "typical" life-bearing planet and understand the dynamics of the refilling of the biosphere. Unfortunately (again), I don't believe that enough is known at this time to do it right.

The only irrefutable fact is that intelligent life is possible. This alone makes SETI interesting. I am not optimistic about the outcome (for reasons different from Faulkes's), but

like Faulkes I'd hate to see the search abandoned entirely. I'm afraid, though, that it's just a shot in the dark.

Jon J. Thaler
Department of Physics
University of Illinois
Urbana, Ill.

Zen Faulkes considers the term f_i of the Drake equation, which is the fraction of planets with life that have intelligent life. He proposes that this should be

$$f_i = \frac{\text{one intelligent species}}{\text{every species that ever lived}}$$

This evaluation is logically consistent if *only one species exists at any one time!* But this is absurd. In fact a fair fraction of all species that have ever existed are coexistent. So the equation should be:

$$f_i = \frac{\text{one intelligent species}}{\text{every species that ever lived}} \times \text{number of coexistent species}$$

To first order the ratio, number of coexistent species/every species that ever lived, is the reciprocal of the number of times nature has erased the slate and rolled the dice again—that is, the number of mass extinctions, which is a small number of order 10. But even this factor is accounted for elsewhere in the Drake equation, by f_L, which includes not only natural extinction of species, but suicidal behavior of an intelligent species. So with these corrections of logic, Faulkes's proposal reverts back to the "traditional way of determining the value of Drake's f_i," that is, "one intelligent species/one biosphere."

Alan Harris
Jet Propulsion Laboratory
Pasadena, Calif.

Even within the bounds of his nonhierarchical speciation model, Zen Faulkes badly underestimates the value of f_i, the fraction of biospheres that might evolve intelligent life. His estimate of f_i as "one intelligent species / every species that ever lived" is actually an estimate of the fraction of *species* likely to evolve intelligence (f_{si}), not the fraction of *biospheres* (f_i) that evolves at least one intelligent species. The correct estimate of f_i is:

$$f_i = f_{si} * N_s,$$

where N_s is the typical number of species that develop in a biosphere. If our own biosphere is a typical one, then f_{si} is indeed small. But N_s will be a very large number, and f_i may in fact approach unity rather than zero as argued by Faulkes.

Craig R. Wyss
Seattle, Wash.

It was refreshing to see two points of view on SETI in your Spring 1991 issue. But Zen Faulkes's piece on the probability of intelligent life arising given a biosphere has a few difficulties. Stephen Jay Gould's bestseller, *Wonderful Life*, does say that survivors from the Burgess Shale made it "by luck," a point that Faulkes picks up to underline the theme that a sensate being cannot [easily] be expected to arise from evolution. The various catastrophes during Earth's life could be called "luck" and mutations are random, but the process of natural selection is an iron discipline. Although intelligence need not be selected for survival (look at the shark or the cockroach), adaptivity certainly will be; and when adaptivity, driven by demanding environments, has proceeded so far that the organism can begin to manipulate the environment, cultural evolution begins. In an atmosphere that is transparent to electromagnetic waves, radio technology will likely eventuate.

Faulkes makes much of Jared Diamond's point that, because no other animal has exploited the niche of the woodpecker, why would one think any animal would exploit radio technology, which has fewer obvious benefits? This

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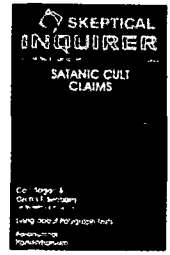

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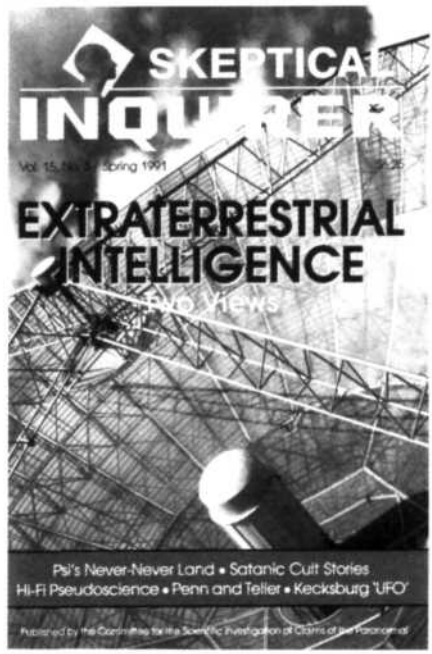
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is a non sequitur. There is no rule of evolution that all niches must be found. Besides, radio technology is no survival niche. The evolved sensate being simply turns to radio technology, as to all the other diverse interests of modern life, out of insatiable curiosity, an evolved trait.

John Toomay
Carlsbad, Calif.

According to Thomas R. McDonough (*SI*, Spring 1991), SETI will have a moral payoff. If we do discover ETI, "we would begin to see ourselves as a single species in which our differences were trivial compared with the differences between us and them." On the other hand, if we don't discover ETI, we'll "have to be very careful of our own life. It will make us realize the unique value of our planet in the universe."

Boy, this sounds like a terrific win-win deal for us taxpayers . . . unless, of course, we discover we're alone in the cosmos and conclude that the earth's various races, tribes, and nations are even more alien to one another than we'd heretofore supposed; or, conversely, we discover that the universe is teeming with clever creatures and conclude that we might as well build a Doomsday Machine since, hey, what's one intelligent life form more or less?

Don Symons
Department of Anthropology
University of California
Santa Barbara, Calif.

McDonough waxes eloquent on the possible benefits of a contract with extraterrestrials. . . . Perhaps a bit of caution is in order.

I recall the uneasiness I felt when I first read that a plaque had been attached to Pioneer 10, depicting ourselves, describing our world and its creatures great and small, and, heaven forbid, *revealing the location of our planet!* The hope was that some intelligent civilization might find that bit of space flotsam and . . . do what? Come and do good deeds, I suppose.

Might I be skeptical enough to raise the possibility that some of the critters out there—if there are any—might find us to be unbearably delicious? Or that perhaps they might be, from our point of view, inexplicably malevolent, transmitting to us an encyclopedia of deadly misinformation for reasons beyond human logic? Or that rather than being celestial secular humanists, they might have a theology that holds that all intelligent life forms other than their own are the creation of an evil god and are therefore to be destroyed?

McDonough and Carl Sagan seem to share the romantic view that a scientifically and technologically advanced civilization is likely to be a morally advanced civilization. If this be the case, then perhaps they can present some evidence from recent human history.

Until such evidence is forthcoming, it might be prudent to assume that for every *E.T.* there is an *Alien* as well.

David Savignac
Crofton, Md.

Since last summer, I have been actively involved in developing an alternative rationale to that currently accepted by most of the SETI community. Most of my approach, which is centered around optical communications, is not new, and ETI laser communications was first suggested by Schwartz and Townes back in 1961, only two years after Cocconi and Morrison's classic paper identifying 1.420 GHz as a "magic frequency." For various reasons, the optical approach wasn't accepted by the SETI community. The idea that ETI signals may be in the optical spectrum is another explanation of why we have so far been unable to detect their signals. . . .

The SETI community has been extremely conservative and timid about ETI technologies and, at most, has tended to only slightly extrapolate our current technology for accessing the

technical abilities of ETIs.

I treat the subject of SETI just like a communications problem, and I would argue that, within a few decades, photonics (optoelectronics) will become the major communications (and perhaps computer) technology on this planet. It is likely to become the primary mode of electromagnetic terrene communications through deep space and interstellar space. The same applies to ETIs, and they will have no trouble aiming very narrow optical beams at targeted star systems.

I believe that the SETI community, which is just initiating the first search program at the CO_2 "magic wavelength" of 10,600 nm, should be more active in searching the entire optical spectrum.

Stuart A. Kingsley
Fiberdyne Optoelectronics
Columbus, Ohio

I enjoyed the articles about extraterrestrial intelligence. Faulkes may well be correct in his assessment of the improbability of intelligent life evolving. There are some factors he does not cover that mitigate further against technological civilizations arising (in fact I have not seen them covered anywhere). These are as follows:

1. Any intelligent species would require an oxygen-containing atmosphere to make fire and so to smelt metals. Any civilization living under an oxygen-free atmosphere would be forever trapped in the stone age.

2. Any intelligent species that was wholly aquatic could not make fire and so would be in a similar predicament. Too bad for dolphins.

3. An intelligent species with no manipulative organs (e.g., hands) could not make or use tools and so could not develop technology. Again that's tough for dolphins.

To end on a more optimistic note, any technological culture smart enough to overcome whatever early problems it may have (war, overpopulation, etc., though it is an assumption that such human problems would apply to aliens) would surely be smart enough to persist indefinitely. The species itself may evolve (perhaps under its own control) to superior forms or even be displaced (voluntarily or otherwise) by its own intelligent computers. Either way I see no reason why a technological civilization that has overcome its initial difficulties (if it had any) should not continue in some form for billions of years. F_L, in Drake's equation, may be closer to one than is generally realized.

Stephen Moreton
Warrington, Cheshire, U.K.

... The most significant technical change in the past 50 years is the development of computers. There is no reason to regard human intelligence as a limit on the scale of possible intelligence; and at the present rate of machine development and if present trends continue, it is a safe prediction that computers will be substantially smarter than humans within a hundred years. We also have no reason to suppose that machine intelligences cannot possess consciousness. Occam's Razor suggests that they could.

The conclusion of all this is that perhaps hi-tech societies run by carbon-based life forms have a very short duration, before being somehow overtaken by their own creations, which are silicon-based. There is a lot of uncertainty in that "somehow," but the simplest guess is worth considering, if only because I have never seen it discussed. This is that anyone out there who can communicate over interstellar distances is probably a machine.

Is this likely? Enough to take it very seriously in pursuing SETI, I think, and particularly as a possible explanation for our failure to find any signals so far.

John C. Sleeman
Palo Alto, Calif.

. . . [One] reason the search is naive is in the presumption that electromagnetics are the communication "wave" of the future. If the ancient Greeks were given

the SETI task, they would probably have assembled a huge chorus, cried out a message, and listened for an answer. In the Middle Ages a huge array of torches would probably have been assembled and a flickering response from the moon would have been expected.

A little imagination can produce a wide variety of potential futuristic communications methods that have significant advantages over electromagnetics. A highly collimated beam of neutral particles, for instance, could travel huge distances in space with little loss of energy. This would be a highly efficient long-range system and would be undetectable to a SETI listener outside the beam.

For intraplanetary communications a noninteracting particle stream, such as neutrinos, could be beamed directly through the planet to the intended recipient. These particle beams would have tremendous capacity for information transmission and would be undetectable to earth-based SETI listeners.

These techniques are farfetched because we do not have and cannot even dream of technologies needed to efficiently generate or receive such beams. We are in the position of Benjamin Franklin trying to create a television system based on his knowledge of magnets, batteries, and static electricity.

Peter Torrione
Norwood, N.J.

Zen Faulkes replies:

Thanks to those who pointed out that my formulation of f_i does not show the fraction of biospheres that develop an intelligent species: rather, it shows the fraction of species that become intelligent. I stand corrected. The error, however, does not in any way diminish the thrust of the argument. To say that $f_i = 1.0$ is a strong claim, and strong claims require principled reasons *for making them.*

The interesting question is not whether intelligence evolved on this planet (since it clearly did), but can we generalize from this particular occurrence of intelligence to other potentially existing biospheres? Now generalizations can be made either statistically or by invoking general laws. In this case, statistical generalization is invalid because the sample size is too small: we know of only one biosphere. So do we have any biological rationale, any evolutionary laws, any principled reasons that predict the inevitable *emergence of intelligence, from which we could justifiably claim that $f_i = 1.0$?*

No. The evidence seems to show that: (a) there is no general evolutionary trend toward intelligence, and (b) the argument that evolutionary convergence could produce intelligence analogous to ours is weak. Therefore, there is no compelling reason to say that the evolution of intelligence was (or is) a highly probable event.

Thomas R. McDonough replies:

If, as I suspect, we discover that the universe is teeming with clever creatures, I don't think we'll use that as an excuse to build a Doomsday Machine. Instead, we'll do what humans usually do when confronted with a technologically more advanced civilization: learn from them. Maybe we'll become the Japanese of the galaxy, and wind up teaching them *a thing or two.*

Yes, let's continue searching, even if we find nobody. Perhaps there's a better way to communicate that we haven't figured out, so let's keep trying different techniques.

It is entirely possible that there may be hostile aliens out there. My suspicion is that the really nasty civilizations blow themselves up before they have a chance to develop interstellar travel. But even if they don't I still think it's better for us to know of their existence than to be ignorant of it.

I agree with Kingsley that optical SETI searches should be conducted. Such a search was done by the late Soviet researcher, Shvartsman, and I hope that more will be undertaken in the future.

It's true that there could be planets crawling with alien Aristotles who can't use tools. Drake recognized that, and in his equation, he only calculates the number of civilizations capable of communicating over interstellar distances.

I agree that some civilizations might

evolve into artificial intelligence (AI). That's all right for SETI, as long as they communicate across interstellar space. AI would make it easy for them to maintain transmitters for billions of years, increasing our odds of success.

Our search methods are bound to be naive from the point of view of a physicist a thousand years into the future. But they're not as naive as they sound. Most SETI searches are specifically designed to look for beacons, *not random TV or radar signals, because we do not yet have available the giant antennas that would be needed to detect such faint signals. It is entirely possible that an advanced civilization would set up an easily detectable beacon using primitive "Galactic Boy Scout" technology, precisely in order to make contact with primitives like us. Also, the SETI community is well aware that there may be means of communicating that our present science has not yet discovered. We are faced with the problem of doing something* now, *given existing human technology and limited funds.*

The bottom line is that if we don't look, we'll never find anything, so let's look!

Hi-fi audio pseudoscience

I enjoyed Fred E. Davis's "Hi-Fi Audio Pseudoscience" (*SI*, Spring 1991). It's rare that one can read an ad for audio equipment without raising an eyebrow and rolling one's eyes, but the product reviews provide the best entertainment. The reviewers are continually creating new vocabulary to describe what they hear, or believe they hear. (My favorite is "wooly bottom.") . . .

James F. Britton
Portland, Ore.

I must applaud Davis for his comments on another example of beauty being in the ear of the beholder. I had similar concerns when I subscribed to one such magazine (*Stereophile*) and attempted to obtain scientific satisfaction, without success.

On several occasions I wrote to both the editor and the publisher with the request that the magazine publish the audiograms of the reviewers of both equipment and music so that readers could judge for themselves whether these self-styled "golden ears" (invariably males, presumably at least middle-aged, and with a high probability of presbycusis) were physiologically capable of making the judgments they claim to be able to make. This would be a critical component of any scientific study, particularly when thousands of dollars could be spent by unsuspecting "audiophiles" on the results of such reviews (which often have impressive graphs and other obscure technical details to lend credibility to the whole article).

Needless to say, my requests were not even acknowledged by the editor or publisher, and no audiograms were published, so I eventually canceled my subscription.

Peter R. Wilson
Rochester, Minn.

Many people believe they hear differences in sound when adding some of the many "tweaks" that are currently available. Further, the bulk of hi-fi component sales in the so-called high-end market are based on the expectancy of better sound, with "better" being defined as closer to the original. This brings up the topic of subjective versus objective evaluation of hi-fi equipment. . . .

It is unfortunate that subjective impressions can be easily biased by brand reputation, component appearance, price, associated propaganda, and so on. The influence of these factors can, however, be eliminated by putting subjective testing on a blind (preferably double-blind) basis. If we wish to determine a preference between amplifier A and amplifier B, for example, we can adjust them so that they both work at the same power level and are not overloaded by the music that is used for the test; and then the testee, without knowing which is which, can try to identify any differences when they are

switched. If a difference is detected, then a preference can be expressed. Results of carefully controlled subjective tests of power amplifiers do not substantiate subjectivists' claims to be able to detect differences; but where differences are established, they can be explained by measured test data.

Subjectivists reject such A/B switching tests as being "unnatural," "confusing," "not the way one listens to music." They even say that the use of switches adds distortion that masks the differences between the units being tested (ignoring the fact that there are many switches in the record/reproduce chain). There is a curious parallel here to tests of ESP, which give negative results when a skeptical observer oversees them.

David Hafler
Marion, Pa.

(Fred E. Davis provides more information in this issue's Follow-Up section.)

Animal rightists antiscientific

From correspondence (*SI*, Spring 1991) I infer that CSICOP chooses neutrality on the issue of animal rights. In my view, the animal rights movement, although highly variegated, is both philosophically and historically anti-intellectual and antiscientific and in this respect bears many similarities to the "paranormal" movement, mysticism, and the anti-abortion movement. All of these movements have several things in common: they are anti-rational and reject logic, substituting emotion and mysticism for rigorous intellectual practices.

It must be remembered that the basis and the root of animal rights is the historic anti-vivisection movement rather than the latter-day animal-welfare movement. Throughout its history, the anti-vivisection movement has regarded scientists and experimenters as creatures of the devil. Anti-vivisection is one element in a worldwide anti-intellectual movement trying to pit citizens against the forward sweep of so-called "materialistic" science and the accompanying expansion of knowledge and power over nature. Left to the devices of the animal rights people, mankind would still be visited and revisited by plagues, epidemics, and famines beyond control.

Alongside its anti-intellectual position, animal rights is based on a profound ignorance of science and the role played by methodology and test systems in scientific experimentation. Fundamentally this ignorance is based on a lack of understanding of the unity of science, which stretches from the study of microbes to plants to planets to animals and back, and from mathematics to biology. A unity that permits a discovery made on a mouse to apply to a human and one on a human to an amoeba. There can be no prediction regarding which test system will unlock which secret of nature, and the choice of the most effective system (cell, enzyme, dog, human, yeast, pea plant) is itself part of science. . . .

Robert J. Rutman
Dept. of Animal Biology
School of Vet. Med.
University of Pennsylvania
Philadelphia, Pa.

Flatliners' *fiction*

As a film writer (*Cinefantastique*), fiction writer, and longtime *SI* reader, I was dismayed to see Jeff Walker's article "*Flatliners*' Flat-Out Lies" in your Spring 1991 News and Comment section. I sincerely hope that *SI* is not planning to make a practice of targeting *admittedly fictional* works in its ongoing quest to educate and inform. Sure, go after books and movies that glorify the paranormal—*if* the books and movies claim to be true stories. *Flatliners* did not (neither did *Ghost* or *Jacob's Ladder*, which were also singled out). What's next—debunking Stephen King novels?

I strongly suggest Walker remember that fiction is entertainment, just like the illusions of James Randi and Penn & Teller. Fiction, *Flatliners* included, *is*

lies—it's *supposed* to be. Instead of overstating the obvious, perhaps Walker might do better to follow the advice of the advertisements for *Last House on the Left:* Keep repeating, "It's only a movie. . . ."

Dan Perez
Houston, Tex.

Sheesh and all right, already! I am a lifelong skeptic, but I recognize science fiction as such, even in the movies. And the best science fiction is often that which has the "flavor of true science." Jeff Walker seems to think that the movie *Flatliners* has performed some great disservice against reason, when in reality it was fun entertainment, at least for some. Let's face it, there are individuals who will misconstrue anything, but that's no reason to do away with the escapes many of us employ to better cope with the mundane, understandable, nonmystic world in which we all live.

Barlow Soper
Ruston, La.

What *Flatliners* actually does is follow one of the oldest Hollywood approaches to dealing with the "supernatural": Don't take sides, just provide entertainment. *Flatliners* was done in such a way that each event can be given either a natural or a supernatural explanation, depending on the bias of the viewer. The true believer who sees the movie only to have his faith in near-death experiences reinforced will go home just as disappointed as the skeptic who hoped to see NDEs debunked.

Russell Van Zandt
North Aurora, Ill.

Jeff Walker replies:

Flatliners *is fiction entirely dependent on NDE books whose dubious afterlife-affirming interpretations are treated as fact. Just as aboriginal peoples misrepresented in films absorbed by millions of impressionable minds are justified in complaining, so too are skeptics when film-makers ground their stories in pseudoscience posing as the genuine article. If only viewers knew that the underpinnings of the movie were as "admittedly fictional" as its plot and characters. Far be it from me to denigrate "fun entertainment."* Flatliners *was that* and *it was misleading for millions with no more than a passing familiarity with NDE literature.*

Satanic cult stories

Jeffrey S. Victor, in "Satanic Cult Survivor' Stories" (*SI*, Spring 1991), expressed being "a bit mystified" when hearing someone confess that Satanism confirmed the belief in God. It may be helpful to demystify a few more students of Satanism. Modern Satanism is essentially a product of Christianity.

While Satan is not a major factor in main-line Protestant and Catholic religion today, it (he) is important to Protestant fundamentalism. The Harding psychiatric hospital in Worthington, Ohio, is a part of this fundamentalism. The hospital is staffed and managed by many members of the Seventh-Day Adventist church. This church's prophetic founder (Ellen G. White) intimidated foes by pronouncing them to be under the power of Satan. Adventist youth are taught that Satan's angels are constantly trying to ensnare them and that if their eyes were opened they could see an army of evil angels slinking about. Stories of apparitions and séances are part of the lore of Adventist schoolchildren.

If Adventism were not so typical of the American experience, did not have an extensive educational system, and did not have a sizeable source of income through many highly skilled members (the educational system emphasizes the highly paid professions), its existence could be ignored. My experience with this church led me to realize years ago what Jeffrey Victor has just discovered: that evidence of satanic evil is evidence of God. The psychology is simple. Belief

in God is closely tied to belief in the supernatural. This follows from a better understanding and a different attitude about what we call "natural." Thus doubt of the existence of the Judeo/Christian God is understandably brought on by an increase in knowledge. But doubts about the existence of the supernatural are assuaged by evidence of evil supernatural power, i.e., Satan. A very short leap of faith allows one to believe in supernatural "good" and the fear of natural decay and death to diminish.

Perhaps those debunking fantastic Satanism stories may realize that they are only cutting warts off a much bigger beast.

Don Silver
Ashland, Ky.

By profession, I am a clinical social worker and work with child-abuse cases on a daily basis. For over 15 years I have handled these cases, and I have never had a case of "ritual abuse" as discussed in the *SI* series. I attended a workshop on the subject in Witchita, Kansas, on March 15, 1991, conducted by the Alliance for Cult Awareness. Here are some of the points the presenter made: (1) All of his multiple-personality disorder (MPD) patients were victims of satanic-cult ritual abuse. (2) There are millions of children killed by these cults each year in the United States. He did point out that no bodies have been found. (3) The book *Michelle Remembers* is an excellent source to learn about MPD, as are several other pop-psychology books you can buy at Waldenbooks. (4) The film *Manchurian Candidate* is an excellent source to learn about brainwashing.

The presenter talked fast, showed slides of drawings by MPD patients, used anecdotal stories to the exclusion of any evidence of a scientific nature, and either bypassed all pointed questions or stated, "That is too complicated for me to get into with the limited time I have." Right!

My theory regarding MPD is that it is a good excuse for socially unacceptable behavior: "Not my fault . . . the other me did it. . . . I can't remember."

Melton L. Francis
Derby, Kan.

As a clinical psychologist, I am involved with the treatment of clients diagnosed with MPD. Neither the diagnosis nor the origin of the disorder is arcane. The symptoms are certainly most dramatic and can be quite confusing if described incorrectly. The clients are often very intelligent and quite capable of constructing elaborate images. Your series, however, portrays all clinicians as being more gullible and more easily duped than is, I believe, the case. I was intensely skeptical of the disorder itself, but came to understand it. I was, and am, skeptical of the stories that are told of torture and hurt. What is not reported in your articles is the fact that the clients I know are *also* skeptical of these stories and often go to considerable lengths to deny them, yet often arrive at an acceptance of their reality, sometimes through outside corroborating evidence. In addition, clients do sometimes retract an earlier reported "memory." The picture I wish to communicate here is far fuzzier and more ambiguous than that portrayed in your series.

Kenneth L. Salzman
Lansing, Mich.

As a psychotherapist who works with seriously disturbed adolescent offenders (in the California Youth Authority) I occasionally encounter tales of "satanic" cult involvement—and the accompanying horror stories. I do not find them convincing (despite their "similarity" and "internal consistency"—in fact they all sound like they were read from the same transcript!), nor do I find any corroborating evidence in the individuals' histories. Surprisingly, the frequency of such tales is low, considering the media hype on the subject, and they are generally presented by socially and

emotionally deprived youths who are seeking acceptance and stimulation. The more criminally oriented and aculturated (e.g., gang members) who would be most expected (per current stereotypes) to be involved in "Satanism" don't have an interest in it. They are too attuned to territorial rivalries, obtaining drugs, etc., to bother with quasi-religious rituals!

Your series of articles has been valuable for me in terms of maintaining perspective, and I have shared them with colleagues at work—some of whom have had doubts and questions and may have been considering the possibility that these horror stories are true. Thank you for an excellent magazine, and a useful series of articles.

Selmer E. Wathney
Sacramento, Calif.

Expectation overruling memory?

It is curious how expectation can sometimes overrule memory. In your Spring 1991 issue, Martin Gardner discusses the case of the sinking of the *Titanic* with reference to his own book *The Wreck of the Titanic Foretold?* Its theme, as he reminds readers, is that "contrary to what many believers in precognition have argued (notably Ian Stevenson, a parapsychologist best known for his research on reincarnation) there is no good reason to believe that the *Titanic*'s disaster had been paranormally anticipated." However, if he would care to look again at what Stevenson actually wrote in his article "A Review and Analysis of Paranormal Experiences Connected with the Sinking of the *Titanic*," *J. of the American S.P.R.*, 54, 1960, 153-171, he would see that, in fact, Stevenson comes to much the same conclusion as he does. After noting ten points of resemblance between the *Titan* of Morgan Robertson's book and the *Titanic*, Stevenson points out that, although these points of resemblance "may strongly suggest precognition ... we certainly cannot exclude inference as a source of Robertson's story" (p. 164). He then proceeds to account for each of these correspondences in the light of the sort of expectations generated by the engineering marvels of the time coupled with a knowledge of man's hubris and tendency to overreach himself. Contrary to what some of your readers may suppose, parapsychologists do not lightly invoke the concept of precognition but do so only as a last resort when influence or coincidence can be ruled out.

John Beloff
Department of Psychology
University of Edinburgh
Edinburgh, Scotland, U.K.

Iben Browning's prediction

In "The Iben Browning Quake-Prediction Flap: Lessons Linger" (News and Comment, *SI*, Spring 1991), Kendrick Frazier wrote: "The essential point is that Browning's prediction and his tidal-force theory did not emerge through the usual processes of science, which include peer review and eventual scientific publication." I think the essential point was that Browning failed to do good science in which the evidence is used to select the good theories, rather than using the desired theory to select the evidence. While the scientific bureaucracy is useful, it's not the thing that makes science, science.

Browning's hypothesis that earthquakes can be predicted based on the tidal force of the moon wasn't too bad as hypotheses go. At least it was built out of real phenomena instead of magic. The next step should have been to test the hypothesis, and this is where Browning stopped being a scientist.

First of all, Browning should have recorded all the predictions made using his method, prior to the times the events were expected to occur. This record must be protected against additions or deletions after unpredicted events occurred or predicted events failed to occur.

An objective and uniform system

should have been established for determining hits and misses, with all results recorded. Events must not be selected to fulfill the predictions.

Finally, the ability of the method to predict earthquakes must be compared to the chances of predicting earthquakes at random.

Doing all of this would have enabled Browning to determine scientifically whether his hypothesis works. Instead, he did none of it, which makes peer review and scientific publication a moot point.

Martin J. Grumet
Danville, Ill.

I would like to add two comments to your piece about the Iben Browning earthquake prediction. The first is that no one seems to have pointed out that his prediction was fulfilled; if there was a 50/50 chance of an earthquake on or about December 4, there had to be a 50/50 chance that there would not be an earthquake, and indeed there wasn't.

The second touches on your statement that Browning's prediction had nothing to do with the paranormal. True enough, but there was a connection, though it could be only guilt by association. David Stewart, a geologist at Southeast Missouri State University, added considerable fuel locally to the Browning affair by endorsing the prediction. As the *St. Louis Post-Dispatch* pointed out, quite responsibly in my opinion, Stewart was involved earlier in the promotion of a psychic's prediction of a major earthquake in North Carolina. As a result of the story, Stewart left his post as Director of the Center for Earthquake Studies, though he retains his faculty position.

R. F. Trimble
Dept. of Chemistry and Biochemistry
Southern Illinois University
Carbondale, Ill.

(Iben Browning died July 18, 1991, in Albuquerque, at the age of 73.—ED.)

Houdini and Home

I have to point out a serious factual error in the letter from Patrick J. Leonard, Sr. (Spring 1991, pp. 327-328).

Although Houdini is one of my heroes, he occasionally went off "half-cocked" with unverified statements that he *thought* were facts. In the case of Daniel Dunglas Home, about whom I have spent several years in research and about whom I am writing what may be the definitive book: Houdini is incorrect about what he says happened at the séance that Home had at Robert Browning's house. What is stated to have occurred, even if it was by Browning's son (who was not present), is simply not correct. In fact, although Elizabeth Barrett Browning liked Home and was impressed with him, Robert Browning detested Home. Why is not *entirely* clear, although it was possibly a personality clash. It certainly was *not* because Home was caught red-handed in a fraud at Browning's house.

On the other hand, Steven Hoffmaster is *also* incorrect in stating that Home was never caught in a fraud. In this, Leonard is correct to criticize him. Home was caught in at least three frauds (possibly six), which I document in my book. The Browning séance, was not, however, such an incident.

Gordon Stein
Editor, *Encyclopedia of Hoaxes*
Cranston, R.I.

Blum's earlier work

In his review of Howard Blum's *Out There: The Government's Secret Quest for Extraterrestrials* (Winter 1991), Philip J. Klass identifies Blum as a former *New York Times* reporter whose earlier books include one on the Walker spy family. But perhaps more relevant to the issue of Blum's credibility as a reporter is another of his earlier books, his 1977 bestseller, *Wanted: The Search for Nazi War Criminals in America.*

One of the "Nazi war criminals" who figured prominently in Blum's book was

a man named Tscherim Soobzokov. Relying on information provided by Soobzokov's political enemies in Paterson, New Jersey, Blum accused Soobzokov of having been a member of a "Nazi mobile killing unit" responsible for the deaths of 1.4 million Jews during World War II.

However, a reporter for *The Record*, a local New Jersey paper, investigated Blum's charges against Soobzokov and concluded that "Blum's writing on Soobzokov was riddled with errors and fantasy."

Soobzokov sued the New York Times Company, the publisher of Blum's book, for libel. According to the *Village Voice* newspaper, the *Times* settled out of court with Soobzokov for a large sum of money. At the insistence of the New York Times Company, details of the settlement have not been made public.

Perhaps Howard Blum learned a lesson from this experience and switched from searching for "Nazi war criminals" to searching for "extraterrestrials" on the reasonable assumption that the latter won't sue for libel, no matter how riddled with errors and fantasy his writing about them might be.

L. A. Rollins
Port Townsend, Wash.

Alerting to pseudoscience

I recently returned from the invigorating CSICOP conference in Berkeley and was truly impressed with the science and with the people. It motivated me to complete a letter that I started over a year ago, when the sixth edition of the BSCS Blue Version high school biology text was first released.

In the first chapter of this textbook, there is a section (p. 15, 1.8) titled "Pseudoscience." As a biology teacher and a reviewer and annotation writer, I provided the following notation, which was included in the Teacher's Edition: "Ask students to name some examples of pseudoscience. The SKEPTICAL INQUIRER, Box 229, Buffalo, NY 14215, is an excellent source of a scientific look at pseudoscience."

It's a small contribution, but it's a start. I am sure other books will soon follow. It is great that such a source as the SKEPTICAL INQUIRER exists. Thank you.

Steve DeGusta
J. F. Kennedy High School
Sacramento, Calif.

Biblical psi powers

I was surprised to read in Samual T. Gill's "Carrying the War into the Never-Never Land of Psi" (*SI*, Spring 1991) that "the Bible is uniformly and harshly critical of psi-type powers."

I would have thought that claims that water was turned into wine, that a person was observed to walk on water, that special messages had been received from nonmaterial sources, or even that the future could be foretold, are all claims to psi-type powers. What one notices is that they are regarded as genuine when they support the views of the writer, but false when they are from an opposing group as in the references quoted by Gill.

George Wood
Nailsworth
Gloucestershire, U.K.

Cultural modernism problem

To find an example of someone who clings to a faith in light of overwhelming evidence to the contrary, look no further than the Spring 1991 SKEPTICAL INQUIRER. In Raymond Eve's essay on science education in that issue, he correctly identified the greatest obstacle to the advancement of science in America: the breakup of the American family. To my astonishment he went on to identify cultural modernism—those forces that seek to overturn traditional American values, including the American family—as the scientific philosophy of "guess and test."

Get a clue! The social experiment of cultural modernism has been a dismal failure by any objective measure. For three decades we have provided financial incentives for the breakup of the American family, and the financial burden we have placed upon what used to be the traditional single wage-earner household have all but driven it to extinction. Cultural modernism is a doctrine of "guess, test, and ignore the result." But those results have become so disturbing that even the cultural modernists are getting a bit squeamish. And still they figure the cure for the malady is more of the medicine that caused the disease in the first place!

Ideas like "Love thy neighbor as thyself" and "Honor thy mother and thy father" are good ones. I want more of America to think that way, and I don't care if people come to that conclusion through the Bible or through secular humanism.

Rein S. Teder
Minneapolis, Minn.

Raymond Eve's article "What's Wrong with Science Education" (*SI*, Spring 1991) correctly identified most of the symptoms ailing our modern society. However, in both his description and assessment of the "Two Americas" he commits some common errors. He states, "Cultural modernists . . . tend to believe a thing is true by means of rational data collection and hypothesis-testing. They tend to believe that morals are largely man-made." This "Modernist" view is not only incorrect, but has engendered the problems of our modern society. This century has been characterized by a steady drift away from an absolute morality. The symptoms Eve mentions are the empirical evidence that absolute morals should not be abandoned. The problems in our society are a direct result of a pragmatic "man-made morality" that is in continual flux to suit the needs of the moment.

Roy Timpe
Blandun, Pa.

Where credit is due

In "Penn & Teller, the Magical Iconoclasts," by Henry Gordon (*SI*, Spring 1991), the definition/joke of channeling (p. 288) was credited to Penn Jillette. Actually, it was originated by the professional magician Jamy Ian Swiss. —ED.

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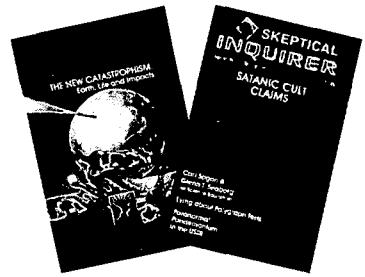

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